COAL AGE

The Weekly Journal of the Coal and Coke Industries

Volume 18 NEW YORK, THURSDAY, AUGUST 19, 1920 Number 8

Lever Act Not Dead

ACTING under authority of a proclamation of the President issued in 1918 under the Lever Act, the Secretary of Agriculture has fixed rates for commission men handling co-operative shipments of live stock, the practices of the commission men having been found to be unfair. This action is of more than usual interest to coal men at this time, as it indicates that the administration does not hesitate to invoke the powers of the Lever Act even at this late day, after so many holes have been poked in its constitutionality.

Coal in Disguise

PROPONENTS of the theory that exports of coal should be stopped or at least greatly curtailed are overlooking a very large leak through which coal is escaping to foreign lands. To make a ton of finished steel requires fully four tons of coal, not including the coal used in transporting the raw materials to the furnaces and mills and carrying the finished products to the seaboard. Exports of finished steel from the United States in the first five months of this year averaged 374,890 gross tons—equivalent to 1,700,000 net tons of coal per month—an increase over the same period of last year of 7.5 per cent and over the pre-war rate of 1913 of 65 per cent. If the present rate of steel export is maintained the *Iron Age* estimates that the total for the year will be 4,600,000 gross tons. This will represent 20,000,000 net tons of coal exported in disguise. That twenty million tons would be quite a help in our coal piles by the time snow flies.

About 13,200,000 net tons of soft coal were exported as such from the United States in the first six months of this year, and total exports for the year, if the last six months are at the rate of the second quarter, will be about 29,000,000 net tons. This will be 9,000,000 tons, or 45 per cent, over the total in the pre-war year of 1913. This is to be compared with the increase in exports of steel in the same period of an equivalent of 7,500,000 tons of bituminous coal. From 13 to 14 per cent of the total American output of finished steel is exported; 7 per cent of the bituminous output was exported in June, a record month for exports and a low month for production.

The steel industry is now operating at from 77 to 80 per cent of capacity, whereas the bituminous-coal industry is running less than 60 per cent of full time, and, figured on the best records of output, is producing only 70 odd per cent of what has been produced in the recent past. The discrepancy is not pleasing to the coal industry.

Through other channels coal is escaping from the country under another name, and although the largest exit is in the form of steel products the other must represent a considerable tonnage in the aggregate. We are confident that the coal industry is willing to participate in a curtailment of exports of their product in like degree with the producers of any other commodity that consumes coal in its making and that requires transportation in the process of getting it from the country. Any other program for increasing the supply of coal for home consumption by decreasing exports is as unfair to the home coal industry as it is to the foreign consumer.

Fair-Weather Operators

HIGH prices have brought the return of the "snowbird" mine—the small operation that will last only as long as prices are abnormal. The operators of these small properties have no sales obligations but hold their tonnage to play the daily market, taking only the top price. This condition has spread throughout the country and, as in 1917, miners are offering their services to the highest bidder—this small operator whose mine has been developed with the intensified demand. These temporary producers pay almost any wage and draw labor away from the real operator and of course are responsible for labor disaffection and shutdowns which follow.

Empty cars are diverted from legitimate operators to the fair-weather miner, who is easily able to load more than his fair quota because he has captured the cream of the local labor. The real operator, with his permanent investment, cannot afford to pay wages that would be ruinous when conditions return to normal and he must adhere to his wage scale. It is impossible to pay the same wages as does the temporary operator and at the same time fulfill contract obligations at prices based on the legitimate wage scales for that district. Thus there is a constantly increasing tonnage being sold at top prices—coal from the fair-weather mine, shot from the solid and usually inferior to the machine-mined coal of the responsible operator. The wagon mine is included in the same class, and this does not tend to raise the standard of coal, which in increasing proportions is bringing premium prices.

Of a Certain Blandness in the Consumer

"FOR ways that are dark and tricks that are vain" may we be commended to certain consumers. There are tellers of truth among the coal-consuming public. We will allow no one to condemn them all in the broad inclusive way in which they condemn the coal producers, but there are goodly numbers of them who go around offering all manner of prices, and then complain when they find some persons venal enough to accept them. There are consumers who are getting about 50 per cent of their contracted coal at contract price, yet are denouncing the operator for not delivering 100 per cent, fully aware that he is receiving only

a 30-per cent car supply. There are consumers blaming operators for not being prompt in deliveries, though they know full well the railroads are to blame and that their contracts do not call for delivery of coal by auto truck, flying machine or any other method than by railroad, and by that means only when the railroad furnishes the cars.

There are buyers for consuming concerns who are offering all kinds of inducements to wagon-mine operators, despite the fact that they know these same operators use cars so ineffectually that their intrusion into the industry intensifies the shortage of railroad equipment. They get poor coal from the wagon mines and then turn around and abuse the regular operators who are delivering clean coal.

Meantime they are bland. They insinuate all kinds of evil practices on the part of the old-time operators, conspiracy being the least. They know that there are good and bad in the industry, but they blame them all. They realize that the operators cannot fix a price for fear of imprisonment, and that so far the Department of Justice has not set one because it is afraid someone may say it is too high, and if it is too low it will close down the mines. But they condemn all and sundry and offer no encouragement to those whose faithfulness to contract and the public interest is involving them in difficulty, unfairly low profits and even in some cases actual loss.

Bleeding Kansas

AS A MINING state Kansas ever seems to have its own peculiar grievances. What causes Kansas to "bleed" frequently does not trouble the rest of the mining fraternity at all. Kansas is a state where new issues are born. The right to "employment in turn" and the right to "equal division of working time between mines of the same company" appear to have originated there and to have found little duplication elsewhere.

The five-day week, however, about which Kansas alone struck, is not a demand peculiar to the coal-mine workers of Kansas. Other mining communities, all mining communities in fact, have presented it, but at least it may be said that interest in the shorter week seems dead everywhere but in that state, where at present it is presented as the leading issue. The wage controversy—the $2 a day increase for daymen, time and a half for overtime and double time for Sundays and holidays—is strictly subordinated.

One would think that just now the right to be idle on Saturdays is not one to be struggled for at the loss of other valuable working time. Many who are now permitted by the car supply to work only one, two or three days a week are ready to go any length to have Saturday added to the meager days of toil.

Kansas miners, however, never greatly desirous of work despite the irregularity with which the mines run, are an exception, for the wounds of Kansas are not like those of her neighbor states. The strike in Kansas was just as much a defiance against the ruling of the Bituminous Coal Commission and the contracts that followed as was the strike in Indiana and Illinois, but it was not, as has been said, so much for more pay as it was for Saturday off and for the abolition of the covenanted fine imposed on the men for all days when work is furnished and the men refuse to respond.

On July 28 the Southwestern Interstate Coal Operators' Association declared that sixteen mines were idle and 2,400 men had quit work. According to Alex Howat, president of the district, men were leaving for Wyoming, where there was an insistent demand for mine workers. In fact there is little question that there are many Kansas men who are eargerly seeking some other state than Kansas—a state where strikes are not perpetual and a living can be made. If Howat continues his activity he will be the sole representative of the union in Kansas. His fellow union men will have departed.

Much misrepresentation has been exhibited about the matter of fines. One paper editorially declares that a long-forgotten provision had been dug up by the operators, whereas it has been so perpetually a matter of controversy and such a favored theme and practice of the late Fuel Administrator that it has always had plenty of advertising. Howat remarked "We are standing behind the men in their refusal to submit to this disgraceful steal out of their hard-earned wages. We resent the practice and will assist the men in moving from the district."

Governor Henry J. Allen ordered the Industrial Relations Court of Kansas to investigate the strike of the mine workers and July 31 it opened its inquiry. The result of the investigation was carried before the Crawford County District Court on Wednesday, Aug. 4., and a motion was made for a permanent injunction against Alex Howat and other district officials.

On Aug. 4 John L. Lewis, president of the United Mine Workers, wearying of Howat's resistance to the authority of the President of the United States and the president of the union, sent telegrams to thirty-three local unions at as many mines ordering their 3,488 striking members to get back on the job immediately, but the order was long in being obeyed. The mine workers of Kansas pay little attention to the National Government, to the international union officials or to the courts, general and special, of the State of Kansas. Lewis' telegram to Howat ran:

"A continuation of the mad course you are pursuing in Kansas will bring further condemnation to your organization and stamp you as a man devoid of principle and destitute of honor. The miners of Kansas, through the incessant and continuous strikes which you have directly ordered or sanctioned, are gradually being reduced to a state of poverty and woe which is tragic and indefensible. This office is in receipt of appeals from many members of the organization in Kansas pleading for the intervention of the international union to save them from your ruinous government. For this reason I can no longer ignore your stultifying actions.

"The childish wails of defiance which will doubtless emanate from you upon receipt of this message will not in any manner affect the situation. The miners of Kansas shall not be permitted to be sacrificed to the whims and caprices of a demagogue."

Part of the idiosyncrasy of the Kansas mine worker has been the outcome of the leadership of Howat, a reflex of his socialistic tendencies. It remains to be seen if he is going to continue to dominate the union in Kansas. At the Jackson Walker mine in Frontenac work commenced Aug. 7 and on Aug. 13 the idle miners of Kansas all returned to work. A committee of the international executive board of the union has been investigating union affairs in Kansas, especially the leadership of Howat. It arrived in the field on Aug. 7. Hereafter, perhaps, t he men in Kansas who want work will not have to leave that state to get it. But if that desideratum is to be attained they must first shake from their shoulders their Old Man of the Sea.—Alex Howat.

N. Y. Central May Acquire Feeder Lines

Negotiations are being carried on by the New York Central Railroad to acquire the Chicago River & Indiana Railroad and the Chicago Junction Railway. The amount reported as involved in the deal is between $4,000,000 and $5,000,000. The two properties mentioned are feeder lines from two of the best traffic producing areas in Chicago. In the event that the consolidation is agreed upon the whole proposal must be submitted to the Interstate Commerce Commission, which must approve it before final consummation.

"Soo" Canal Coal Traffic Gains

According to the monthly report by the United States District Engineer's Office of freight traffic through the Soo Canals during July, 1,294,162 tons of soft coal and 300,150 tons of hard coal passed through westbound. Compared with June this is an increase of 327,780 tons of soft coal and 29,135 tons of hard coal.

Rationing of Gasoline Abandoned, Petroleum Output Higher

Rationing of gasoline in territory east of the Rocky Mountains will not be necessary, according to R. L. Welch, secretary and general counsel of the American Petroleum Institute. There are local shortages at present, and these will continue, but not for long. Government figures, tion of petroleum for June exceeded he says, indicate that the producconsumption, something that has not happened since Aug. 1, 1919. This he considers proof that advancing market prices have stimulated production.

Calder Urges That Shipping Board Move Coal

In announcing the resumption of hearings on the coal stringency U. S. Senator Calder, chairman of the Senate Committee on Reconstruction and Production, also made public a letter sent to Chairman Benson of the U. S. Shipping Board, urging that vessels purchased with the public's money be employed in transporting coal and other commodities at low rates.

B. & O. to Spend $20,000,000

The Baltimore & Ohio Railroad Co. has decided to expend $20,000,000 for new equipment, it was announced by George M. Shriver, senior vice-president. The company has arranged to expend more than $10,000,000 for the overhauling of every car that is worth repairing and about $10,000,000 for new locomotives and freight cars. These are to be purchased through a loan negotiated with the National Railways Service Corporation.

Pig Iron Advances with Raise in Freight Rates

In its weekly summary of the iron market as of Aug. 11 the *Iron Age* says: "A first effect of the freight-rate advance and of the promise of liberal railroad buying has been a sharp advance in the pig iron market. At the same time a conservative element among pig iron producers deprecates higher prices. The railroad situation is improved, but more through better operation than in larger supply of cars for loading. At Chicago, with the resumption of coal shipments from Illinois and Indiana mines, four more blast furnaces are active, so that 18 are now running out of 29 in that district. Mill operations of the leading producer are better, being 70 per cent of normal."

NEWS BRIEFS

Terse Items Chronicling Events of Interest to the Industry

Steel Orders Increase

Unfilled orders of the United States Steel Corporation for the month ending July 31 were 11,118,468 tons. This is an increase of 139,651 tons over the previous month, when the figures were 10,978,817. On May 31, 1920, unfilled orders aggregated 10,940,466 tons; on April 30, 1920, 10,359,747 tons, and on July 31, 1919, 5,578,661 tons.

Seattle Mine Workers Indorse Third Party

Resolutions indorsing the National Farmer-Labor Party were adopted by the convention of district No. 19, United Mine Workers of America, it was reported in Seattle Aug. 7. Another resolution granted to Robert H. Harlin, of Seattle, president of the district, a three months' leave of absence to go to Chicago to take charge of the labor end of the third party's national campaign.

New York Industrial Activity Decreases Slightly

There was only a slight decrease in manufacturing activities in New York State during July, according to a report issued by the New York State Industrial Commission, despite the general belief that mills are closing and shops shutting down. The net decrease in the number of factory workers employed between June and July is given as only one-half of 1 per cent. There were very few closings on account of depression. The number of new strikes, involving few workers, was insignificant.

Illinois Utilities Board Rejects New Rail Rates

The Illinois Public Utilities Commission in two decisions has upheld the precedence of state laws in governing railway freight and passenger rates within the state. The commission ruled that two cents a mile shall be the legal passenger rate after Sept. 1, denying an application for 3.6 cents a mile. Application for a 40-per cent freight rate increase was denied and a temporary increase of 33⅓ per cent granted, contingent on improved service. Further hearings will be held on this section on Oct. 10.

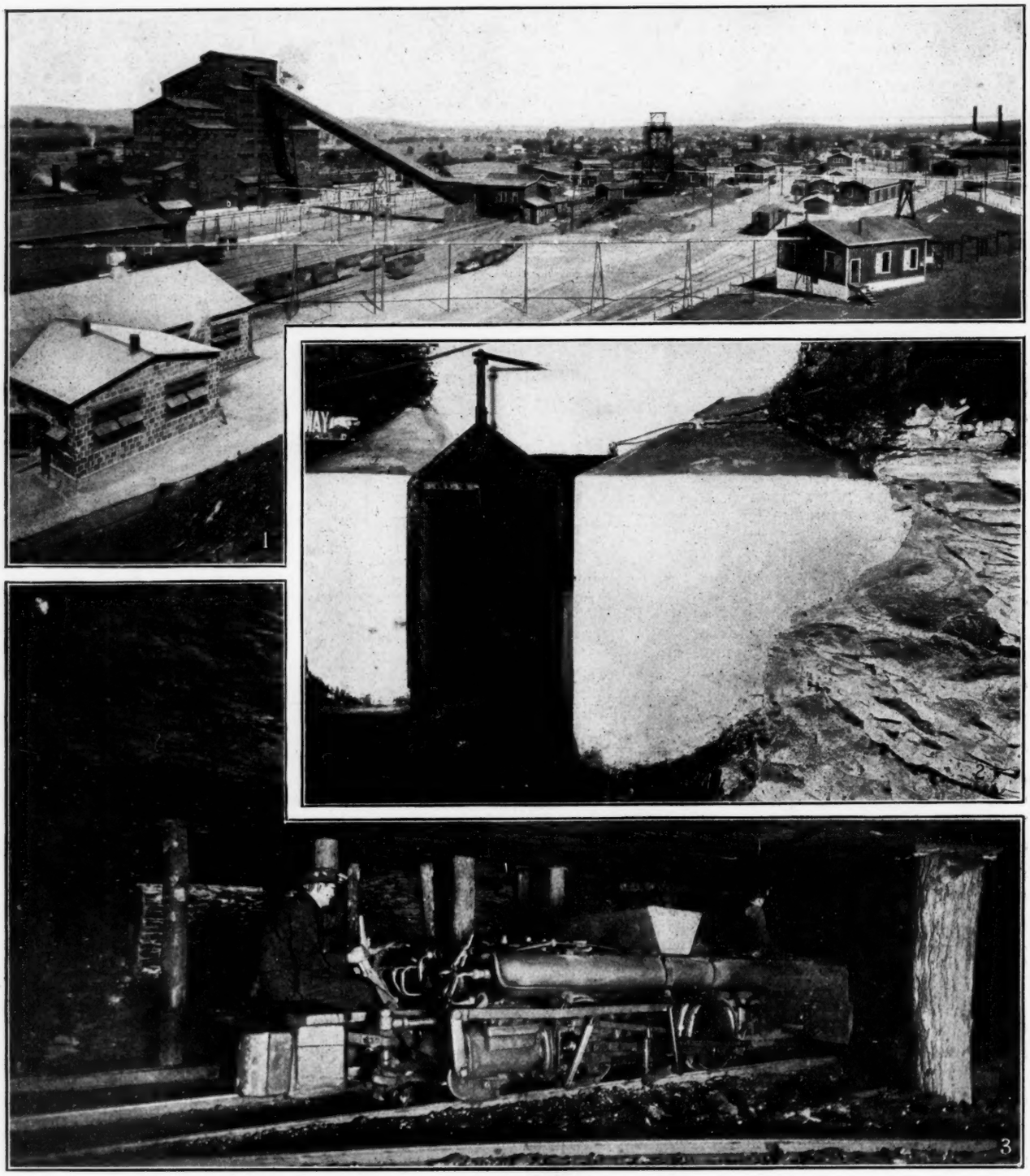
Woman and Two Men Held as Coal Profiteers

Miss Nell Jenkins, president of the Clinch River Coal Co., and Guy Darst and Jake Bewley, of the Darst-Bewley Coal Co., were bound over to the federal grand jury at Knoxville, Tenn., Aug. 10, on charges of profiteering in coal, after preliminary hearings before U. S. Commissioner Powers. They are included among fifteen coal mine operators and dealers against whom Federal authorities instituted proceedings last week.

Forecasts Trade Contest

The rising tide of imports into the United States, according to the Guaranty Trust Co.'s semi-monthly foreign trade review, just out, preages an unprecedented struggle for world markets, for which this country must prepare thoroughly and without delay, if it expects to hold its pre-eminent position in foreign trade. "Of our $13,000,000,000 foreign trade for the fiscal year just ended, more than $5,000,000,000 represented imports, an increase of more than $2,000,000,000 over 1919, and our excess of exports over imports for the year ended June 30 was approximately 30 per cent less than that for the preceding fiscal year," continues the review.

Through the Coal Fields With a Camera



Noteworthy Scenes in the Land of Anthracite

(1) Baltimore Colliery, of the Hudson Coal Co., Parsons, Pa. This view shows the breaker, tracks, shaft headframe, boiler house, and other buildings that go to make up the surface plant. (2) Entrance to a manway of a mine of the Kingston Coal Co. leading to the Checker vein. The turnstile effectively prevents mules from entering this passage. (3) A high-pressure compressed-air locomotive of the Hudson Coal Co. These machines are charged periodically with air at about 1,000 lb. pressure per square inch. This enters the cylinders through a reducing valve at about 250 lb. pressure. These locomotives are used largely where excessive gas accumulations may possibly be met with.

By Charts of Stripping Progress and Cost Operating Losses May Be Forestalled

Most Contractors Strip Coal by Rule-of-Thumb Methods—"Picturizing the Data and the Results Makes It Possible to Study Causes and Effects and Remedy Leaks and Losses Before They Become Serious

By Thomas F. Kennedy
Scranton, Pa.

GENERALLY speaking, every engineering project is conceived by the engineer, architect or other person in the form of a picture thrown upon the invisible screen of his imagination. In order to study his vision more intelligently for the benefit of himself and others he depicts his subsidiary ideas in the form of drawings and for efficient execution assembles them in a general plan.

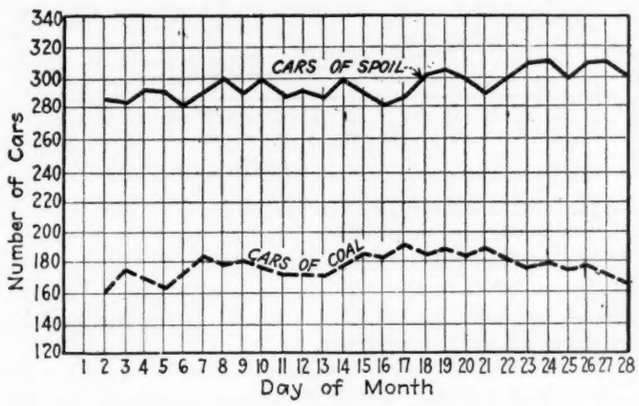


FIG. 1. CHART SHOWING DAILY LOADINGS OF SPOIL AND COAL CARS

For example, the railroad engineer collects his data and presents his project in the general form of a plan and profile of the proposed road for more thorough study by himself and possibly the contractors. The mechanical engineer details his pistons, cylinders, gear teeth and all the various parts of his engine or other device, and assembles all the components into a plan and elevation so that he and his mechanics can either make a more complete investigation into the merits or demerits of the machine or increase in some manner its mechanical efficiency.

The same is true in all other branches of engineering. It is by the assembling of the various depicted ideas and by the more detailed and complete study that follows that not only are the good but also the weak points brought to the surface. With such aids the whole plan can be so changed as to promote efficiency in operation.

Stripping Needs Its Paper Plan and Record

In coal strippings all kinds of data pertaining to various classes of labor, tons of coal and gallons of water used, cars of spoil and of coal removed, etc., are daily recorded, in some cases on separate sheets of paper or forms, and sent to the engineer's office. Here this material usually finds a place of repose in some drawer or filing cabinet. After following out such a system for several months an important question in connection with some phase of the stripping problem arises and the so-called engineer in charge is called upon to furnish information. Then a search begins for the much-desired data. After much trouble and an exhaustive hunt occupying possibly several days, about 50 per cent of the necessary information is "dug up," and the other 50 per cent is furnished in the form of a bad guess.

The information found is made up of a heterogeneous mass of papers containing jumbled figures in such a form that it usually looks like a Chinese puzzle. It is, therefore, with difficulty that the problem can be studied, and then only in an inefficient manner. Thus, in general,

THE BLACK DIAMOND COAL CO. STRIPPING DEPT.
EXCAVATION
MONTHLY REPORT CONTRACTOR W. H. Wirth
NAME

1920	MONTH	NUMBER CUBIC YARDS REMOVED: UNCLASSIFIED (EARTH, ROCK, CULM, ETC.) 5000 10,000	CLASSIFIED: EARTH 5000 10,000	ROCK 5000 10,000	CULM 5000 10,000	TOTAL No. CU. YDS. REMOVED PER MONTH	REMARKS
	January					11,000	
	February					13,600	
	March					15,800	
	April					14,200	
	May					14,500	
	June						
	July						
	August						
	September						
	October						
	November						
	December						

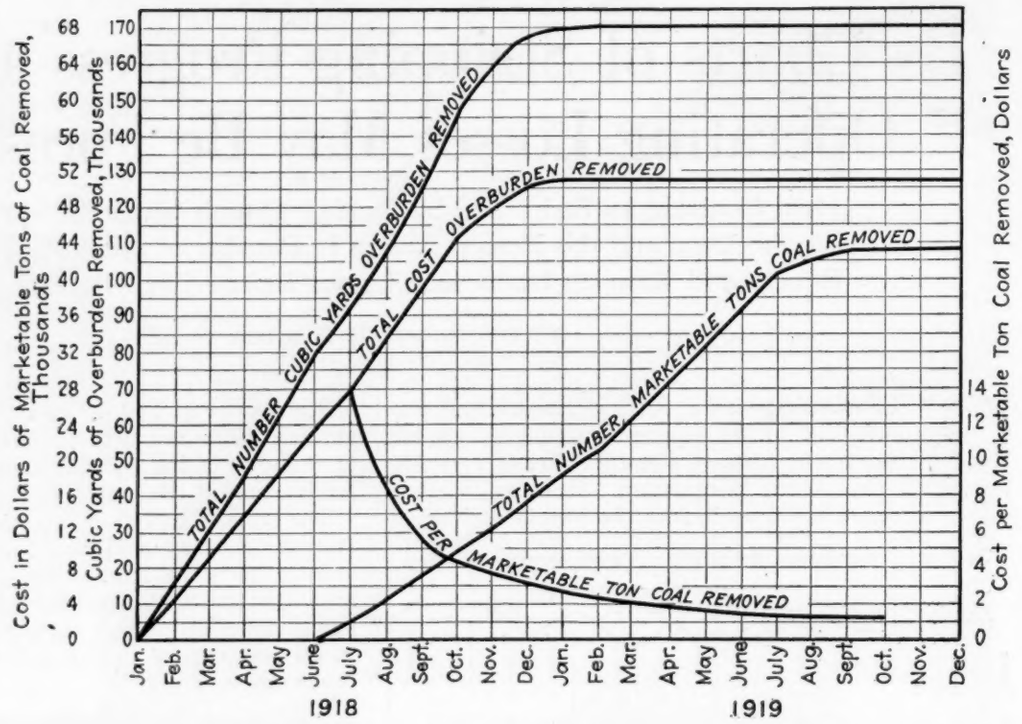
FIG. 2
Classification Chart

Shows by months amount of various classes of spoil removed from strip pit.

FIG. 3

Accumulative Chart

Shows the amount of overburden removed from February, 1918, to February, 1919, when the work of stripping proper was completed. The accumulative curve both of spoil removal and cost ceases to rise, of course, after further stripping ceases.


Cost in Dollars of Marketable Tons of Coal Removed, Thousands
Cubic Yards of Overburden Removed, Thousands
Cost per Marketable Ton Coal Removed, Dollars
TOTAL NUMBER CUBIC YARDS OVERBURDEN REMOVED
TOTAL COST OVERBURDEN REMOVED
TOTAL NUMBER MARKETABLE TONS COAL REMOVED
COST PER MARKETABLE TON COAL REMOVED
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
1918
1919

the lack of systematized and complete data produces poor results for the whole stripping operation. In order to study the problem more intelligently and to promote efficiency in operating methods, the engineer should "picturize" (if this expression is permissible) his data in the form of curves, charts, etc., in such a manner that the information is concentrated and the important outstanding features are vividly presented.

The individual stripping data may be likened to the details of the mechanical engineer's drawing, while the various charts and curves are analogous to the assembled drawing proper. In other words, the collected data on any stripping, in general, mean nothing to the engineer or contractor unless they are assembled into such a form that the various causes for good or poor engineering or contracting can be ascertained. Only by such a presentation of data can the engineer ascertain what are sound and efficient methods such as he is justified in recommending for adoption.

To this end I offer some suggestions in the form of charts and curves. By their means problems can be studied more effectively than by merely looking over a mass of "chow-chow" data. The diagram constituting Fig. 1 consists of two separate curves—one shows the number of cars of spoil and the other the coal removed daily, space being provided for the recording of infor-

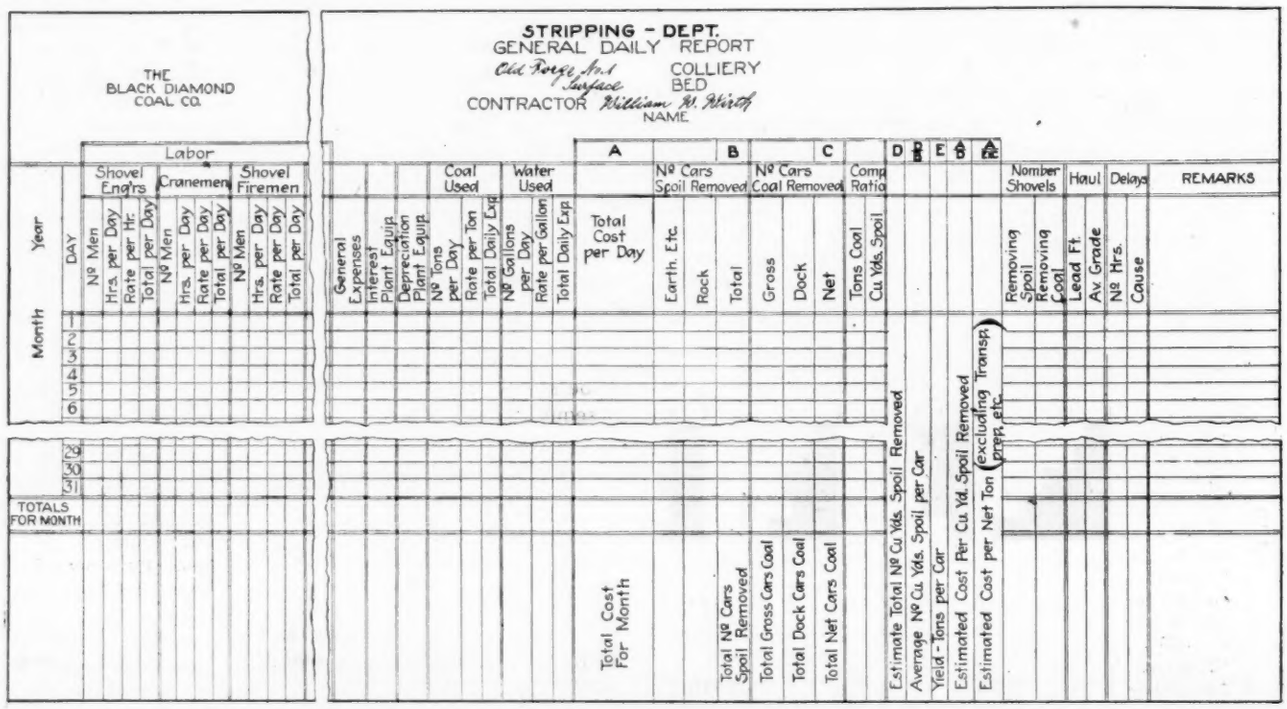


FIG. 4. GENERAL DAILY STRIPPING REPORT SHOWING WAGES, PERSONS EMPLOYED, COAL AND WATER USED, SPOIL AND COAL REMOVED, COST PER TON AND OTHER ITEMS

The Black Diamond Coal COMPANY
ACCOUNT
BILL No.
To William H. Wirth, Contractor Dr.
Scranton Pa.

Estimate #2 For Feb. Month 1920 Year
Date of Contract Dec. 1-1919 Location Mt. Pleasant Nat. Shipping
Application Job No. Previous Estimate Period Jan. 1920

Description	Unit Quantity	Unit Rate	Feb Estimate	Value	Total Estimate	Value
Removing Overburden Unclassified	Cu. Yd.	$0.50	8,000	$4,000	16,000	$8,000

To be Paid by

Total Value	$8000.00
Amt. Retained (5%)	400.00
Balance	7600.00
Former Payments	3800.00
Balance	3800.00
Extra (as per statement attached)	
Total	3800.00
Charges (as per statement attached)	250.00
Amt. Due for Estimate	4050.00

CORRECT William Thompson Stripping Engr. APPROVED T. H. Granger Chief Engineer

FIG. 5. SUGGGESTED FORM OF CONTRACTOR'S BILL

mation concerning the causes and the number of hours of delay. The days of the month are plotted as abscissæ, while the number of cars are shown as ordinates; the number of hours' delay and causes therefor appear at the top of the diagram.

The overburden removed in the stripping of areas is in many instances classified so that monthly records of the excavation can be shown graphically, as in Fig. 2. The excavation may or may not be classified as shown here. In this case, however, arbitrary figures are assumed for each subdivision, and the total number of cubic yards removed monthly is recorded only of the classified material.

The most important considerations entering into a stripping proposition—those which interest the engineer most deeply during development—are the number of cubic yards of overburden excavated, the cost of its removal, the number of marketable tons of coal extracted and finally the cost per marketable ton.

Monthly Accumulative Charts for Stripping

In order to show how easily an engineer might keep in touch with the progress of a stripping operation under his charge, a typical problem from beginning to end is illustrated in Fig. 3. This is known as a monthly accumulative chart, and shows, for instance, the total amount of overburden removed to date by monthly intervals between February, 1918, when the operation of stripping was commenced, and February, 1919, when the last of the overburden was taken off. The overburden-cost curve is plotted and shows the total cost from the beginning to the end of the operation. Curves representing the number of marketable tons of coal mined, and the price per ton so marketed also are shown.

The price of unclassified overburden is assumed to be 30c. per cubic yard. After six months of operation the chart shows that 2,000 tons of marketable coal have been removed and 92,500 cu.yd. of overburden excavated at a cost of $27,750. The cost of the first marketable ton of coal, charged to the cost of removing overburden only, is equal to the total money paid for the total excavation up to the time when the first ton is removed. But, considering the cost of overburden removed up to and including July as $27,750 and 2,000 marketable tons mined in the same month, the cost per marketable ton is found to be $13.875.

In the succeeding months, owing to the increasing amount of coal mined, the cost per ton declines until the last ton of coal is removed in October, 1919. The last cubic yard of overburden was removed in February, 1919, when a total of 170,000 cu.yd. was excavated; the total cost at 30c. per cu.yd. would thus be $51,000 as shown by the overburden cost curve; the total number of marketable tons mined was 43,000, which shows that the cost per ton due to overburden removal alone was $1.186.

The described charts and curves present to the engineer a vivid picture of any trend or deviation in trend that his problems may take. These can not only be recorded and studied easily and efficiently but they reduce his labor to a minimum when it comes to referring to the stripping in general.

In conducting a stripping operation the average contractor nowadays depends upon his experience and good judgment. He usually is tied up to several jobs, with the result that he appears on the scene of each only once or twice a week to investigate how things are going. He gives the job the "once over" and talks with his superintendent or foreman, who was formerly a good shovel runner or bookkeeper. The usual result is that the contractor, owing to an unpresentable form or record of data concerning the daily cost of his plant and operation, in many instances is totally at sea and trusts to his good judgment and good luck that he will come out ahead at the end of the month. Contractors on large operations especially should employ an experienced engineer who can analyze and study daily the various items of expense that make up the cost per cubic yard. It is unnecessary to state that the expense of employing an engineer will be returned many fold to the contractor.

For the foregoing reasons, from both the contractor's and engineer's points of view, it is necessary that some system for intelligently and methodically co-ordinating the different factors, costs, etc., of a stripping proposition should be instituted. In Fig. 4 a general daily stripping report (abbreviated) is offered. This shows the different factors, among which labor is probably the most important. This is mainly composed of wages paid to superintendent, foreman, shovel engineers and firemen, cranemen, pitmen, dumpmen, laborers, dinkey engineers and firemen, brakemen, drillers, blacksmiths, helpers, watchmen, machinists, timekeepers and teams.

Totals Interest Contractor and Engineer

From a study of the report the factors of most importance to the contractor and engineer are the columns designating total cost for month, total number of cars of spoil removed, estimated total number of cubic yards removed and estimated cost per cubic yard of spoil removed. The last item fixes the profit—or loss—of the contractor and should be reduced to a minimum.

With this form of report the higher items of expense can be singled out at a glance and given careful study. Consequently some plan for reducing them can be recommended. If the contract is for removing coal, the column marked "total net cars of coal" also is of significance, while that headed "estimated cost per net ton," arising from the cost of stripping overburden only, directly concerns the company's engineer. In addition to the foregoing charts and curves a form for the contractor's bill is shown in Fig. 5.

In conclusion it might be said that each stripping has its own characteristics and that special curves are valuable in the study of the problems encountered. The few suggestions offered, however, can be applied to almost any stripping.

Does Fusain* Cause Mine and Bin Fires, Spoil Coke and Aid Explosions?†

Too Early Is It to Answer All These Questions, but It Is Clear That Fusain Readily Becomes a Fine Powder, Burns at a Low Temperature, Is Not Readily Extinguished—Its Ill-Effect on Coke Is Unquestioned

BY F. S. SINNATT, H. STERN AND F. BAYLEY
Manchester, England

DURING the examination of the characteristics of the chief seams in the Lancashire coal field it became necessary to investigate the fusain (mother of coal, mineral charcoal, suddy parting, carbonized wood) associated with the various coals. The chief object of the work was to determine the composition of the fusain and the amount present in the dust produced during the working of the coal at the colliery. The investigation is being continued with the special object of determining (1) the amount of fusain present in different coal, (2) the properties of the fusain with especial reference to the temperature at which it will ignite, (3) the influence of the fusain upon the general properties of the coal or coal dust in which it occurs.

The literature of the subject is fairly full on the paleobotanical side, and Tideswell and Wheeler in their recent paper (*Journal of Chemical Science*, June, 1919) indicate the relationship which may exist between a particular specimen of fusain and the coal in which it occurs.

LESS VOLATILE MATTER THAN INCLOSING COAL

J. J. Stevenson, in the Proceedings of the American Philosophical Society, 1911, 1-116, after describing the various ways in which fusain might be formed, states that it usually contains less volatile matter than the inclosing coal and that the percentage of volatile matter varies between 6.4 and 30.7 per cent, but that in certain specimens a very high percentage of volatile matter was found, namely, 48.1 per cent in coals underlying the Homewood sandstone. A specimen containing 11.3 per cent of volatile matter was associated with the coal containing 26.5 per cent but in another case the average of a number of analyses showed that fusain could contain 20.9 per cent and the surrounding coal only 17 per cent.

With reference to the percentage of volatile matter found by this experimenter it will be shown that fusain frequently contains coal intimately mixed with it, and this may be the reason for the percentages of volatile matter found. It may be remarked that no specimen of fusain obtained from Lancashire coals has been found to contain a greater percentage of volatile matter than the coal with which it is associated.

APT TO HAVE MORE ASH THAN HAS TRUE COAL

In Tideswell and Wheeler's paper coal from the Hampstead colliery was investigated; fusain occurred containing 22 per cent of volatile matter, while the surrounding coal varied between 38.6 and 40.8 per cent; the ash present in the fusain is stated to be 10 per cent and that in the surrounding coal to be from 1.2 to 3.6 per cent.

The approximate analysis given by Wheeler for fusain is: Moisture, 3.9 per cent; ash, 10 per cent; volatile matter on ash-free dry coal, 22.6 per cent.

The ultimate analysis given is: Carbon, 84.7 per cent; hydrogen, 3.9 per cent; nitrogen, 1.05 per cent; sulphur, 0.65 per cent; oxygen, 9.7 per cent.

Stopes and Wheeler ("Constitution of Coal," p. 23) state that it would seem "that the composition of the ash of fusain is fairly uniform, judging from the following analyses, Green et alia (1878)":—

TABLE I. ANALYSIS OF ASH OF FUSAIN

	Better Bed, Per Cent	Haigh Moor, Per Cent		Better Bed, Per Cent	Haigh Moor, Per Cent
Silica	38.7	36.1	Magnesia	2.8	0.7
Alumina	33.9	28.7	Sulphuric acid	7.7	7.6
Ferric oxide	6.9	18.3	Alkalies, etc	0.3	4.1
Lime	9.8	4.5			

The ash from a number of specimens of fusain obtained from Lancashire coals has been examined, and the two quoted in Table II indicate that the composition of the ash of fusain may vary over wide limits.

TABLE II. ANALYSIS OF ASH OF FUSAIN

	Ravine Mine, Per Cent	Mountain Mine, Per Cent		Ravine Mine, Per Cent	Mountain Mine, Per Cent
Silica	8.37	37.78	Sulphur trioxide	18.18	8.22
Iron oxide	45.72	4.94	Alkalies and loss	3.70	4.05
Aluminum oxide	9.21	33.06	Color	Light brown	Practically white
Calcium oxide	12.64	9.81			
Magnesium oxide	2.18	2.14			

APPEARS IN PLATES OR AS INCOHESIVE DUST

Fusain occurs widely in Lancashire coals, but the amount present varies much. There appear to be at least two distinct forms of fusain; the first is a hard compact variety occurring rather rarely, which cannot be pulverized by pressure of the fingers; the second type is the common substance, and is dealt with in these notes. It appears to be present in Lancashire coals in two forms: as plates, bands, or in large lumps (one specimen found in the Peacock Mine weighed 3¾ lb.); and, secondly, as a powder distributed over the surface of the coal.

In certain seams the fusain forms a network throughout the mass of coal, the planes not being more than ¼ in. apart. As fusain possesses little cohesive power coal fractures most easily along the planes in which it occurs, and in view of this the surfaces of coal are covered with a layer of fusain. This of course does not

*The name "Fusain" for mother of coal is apparently derived from the name of an especially fine charcoal used for drawing and made from the spindle tree, a sandlewort from Australia.—EDITOR.

†Reprint of a booklet entitled "Coal Dust and Fusain," published as Bulletin No. 5 by the Lancashire and Cheshire Coal Research Association, College of Technology, Manchester, England.

apply when the whole of the coal is being pulverized or a considerable grinding action is taking place, but mainly where it is being broken by fracture.

The layers of fusain (which generally contain less moisture than the associated coal or lose moisture more rapidly) quickly change to a flocculent powder when the surfaces on which they are deposited are exposed to the air, and the dust produced from the coal naturally tends to contain a higher proportion of this substance than of the coal itself. It will be shown later that this phenomenon appears to have a distinct bearing upon the composition of the dust from coal, and especially upon that of the dust occurring in the mine, the screen rooms, etc.

Fusain is a jet-black powder, which retains its black color when finely pulverized; for example, so as to pass through a sieve of 1/200 mesh, whereas bituminous coals ground to a similar degree of fineness frequently yield dust the color of dark mahogany.

Fusain causes a black and dirty smudge on the skin which has an appearance similar to that produced by charcoal. It is removed from the skin with difficulty, as it seems to have a greater affinity for perspiration than coal dust, probably owing to its highly porous nature. An emulsifying agent (soap) is necessary to remove it, and it has been found that the skin is cleansed more thoroughly when fusain is present than when soap alone is used.

Fusain has a needle-like structure, while particles of bituminous coals of the same degree of fineness are, as a rule, more rounded. Fusain may therefore be distinguished from coal dust by means of the microscope. When a mixture of coal and fusain is sieved the particles of fusain passing through a particular size of mesh tend to be larger than the particles of coal, owing to the comparatively greater length of the units of fusain compared with their breadth.

Low-Temperature Odorless Combustion

Fusain ignites with considerable ease at a low temperature, and continues to smolder at a dull-red heat. Many examples have been met with of this material continuing to smolder without the production of flame or the evolution of compounds having an odor. It thus differs fundamentally from coal under similar circumstances. The fact that little odor is produced adds to the dangers associated with the combustion of fusain, as practically no indication is afforded of the substance being on fire.

The following experiments indicate the manner in which fusain burns. A briquet measuring 4 x 4 x 9 in. was made by mixing fusain with water; it was dried at a temperature of about 105 deg. C. and allowed to stand for one week. The briquet was then placed on a stone slab and the tip of one corner heated to redness by means of an ordinary match. The briquet was allowed to remain undisturbed, and in about an hour the whole of it was consumed without the production of smoke or flame; there was no evidence of combustion except a faint pleasant aromatic odor resembling that of pitch-pine.

The mass smolders internally, for when the surface is removed a glowing dull red zone is exposed. The residual substance in certain experiments was a finely powdered coke*—in fact, it appeared as if the volatile matter only had been consumed; in others the residual substance was the ash. A briquet of similar dimensions containing 50 per cent of fusain and 50 per cent coal acted in the same manner, and again practically no odor or smoke was produced.

This experiment was repeated in a number of ways; small heaps were made and the same method of ignition employed, with results which were similar to those described, but in many instances nothing remained except the ash of the material. Dusts from the following sources were examined: a dust collector, a screen room, the froth from a coal washer, all of which contained fusain, similar results being obtained. Fusain appears to play the part of a touchwood or tinder, assisting the combustion of the finely-powdered coal. One case may be cited of the dust from a dust collector becoming ignited by the heat from an electric globe which was placed near to it.

Slow Fire Nevertheless Cracks a Plate

Reference may be made to an experiment carried out for J. B. Atkinson, inspector of mines, Newcastle-on-Tyne (Institute of Mining Engineers, 1909, *39*, 742), on wind-borne dust, in which it was found that if the dust is placed in a cone and heat applied to the top of it the dust would eventually—if the experiment were successful—become red hot throughout, and the heat would permeate the whole mass. The combustion spread throughout the mass, and the plate on which it stood was cracked by the heat developed. Mr. Atkinson stated that "whether that was due to the occluded oxygen or not he did not know; that was a matter for chemists."

Mr. Atkinson also remarked that "Dr. Bedson's experiment had shown that the fine dust at the face or the fine dust from freshly-ground coal was more readily inflammable than the dust on the haulage roads, the latter dust being, notwithstanding, the more dangerous because in the first place it was very fine; secondly, it was in situations where it readily formed a cloud (that was on the upper surfaces of the road); and, thirdly, it was accompanied by a swift current of air."

He further stated that "a good deal of coal dust came from the screens on the surface; it was brought down the shaft, and the coarser particles settled like the sands from a river, first the finer particles or mud being carried farther in and settled on the timber." It is unfortunate that the chemical composition of the dust mentioned in the above experiment was not given. The action is similar to that recorded in our experiments.

Carbonizes Without Caking or Shrinking

When fusain is carbonized no external evidence of the formation of coke is visible, as the latter has an appearance identical with that of the original substance. This might be expected, as the amount of volatile matter evolved is small and is practically free from tarry matter. The coke from fusain is quite deficient in caking power and its volume is about the same as that of the original substance.

The coke is jet black in color, and thus may be distinguished from ordinary coke, which is generally gray in color. It follows that the presence of fusain in coal dust may have a considerable influence upon the caking index or the agglutinating power of the natural dust from coal, and also upon the agglutinating power of the slurry or fine material from coal washers; in fact it acts as finely pulverized inert material. A. Grounds and one of the authors of the monograph have shown that

*Author seems to use "coke" in sense of carbonized, or devolatilized coal, regarding coherence as not an essential attribute of coke.—Editor.

the degree of fineness of the inert material with which coal is mixed has the greatest influence upon the caking properties of the coal. (J. S. C. I., 39, 83.).

The fusain was roughly separated by breaking lumps of coal and removing the dust found on the fragments with a spatula when it was present in the form of sheets, or by brushing it lightly from the surface of the coal. The product was air-dried and then powdered by pressing it gently between the fingers, and the resulting material sieved through a sieve of 1/30 mesh. The portion which passed through was again gently pressed between the fingers. It was again sieved, and the portion which passed through a 1/60 mesh was assumed to be fusain. In order to ascertain the composition of a characteristic piece of "fusain" a special specimen which measured 4 x 2 x ½ in. thick, found in the Ravine Mine, was broken in the manner described above. It was then air-dried, an average sample taken from it, and sieved quantitatively, with the results shown in Table III.

TABLE III. RESULTS OF SIEVING "FUSAIN" FOUND IN RAVINE MINE

	Per Cent
Remaining on a 1/30 sieve	25.4
Between 1/30 and 1/60 sieve	33.6
Between 1/60 and 1/90 sieve	35.3
Passing through a 1/90 sieve	5.7

The color of the above fractions showed a distinct variation, the finer portions being a more intense black than the coarser portions. Upon analysis the fractions gave the results shown in Table IV.

TABLE IV. APPROXIMATE ANALYSIS OF "FUSAIN" FRACTIONS OF RAVINE MINE COAL

Percentage	Coal Remaining on a 1/30 Mesh Sieve	Fusain through 1/30 to 1/60 Mesh Sieve	Fusain through 1/60 to 1/90 Mesh Sieve	Fusain through a 1/90 Mesh Sieve
Moisture	1.50	0.90	0.55	0.70
Ash	17.50	10.00	5.89	6.70
Volatile matter [1]	24.20	16.24	11.97	11.73
Vol. org. matter	22.70	15.34	11.42	11.03
Coke	75.80	83.76	88.03	88.27
Fixed carbon	58.30	73.76	82.14	81.57
Sulphur	5.96	3.54	2.34	2.82
Iron in ash	31.6	30.3	33.2	35.0
Color of ash	Maroon	Maroon	Brown	Light maroon

Note—Material when carbonized was in all cases dull gray and incoherent, but with material remaining in a 1/30 mesh sieve, which might probably best be called coal and not fusain, a compact, flat button was obtained.

[1] Volatile matter is the sum of the volatile organic matter and moisture—*Editor*

It is evident that the portion remaining on the 1/30 sieve—25 per cent—differed from the remainder of the material; in physical appearance it resembled an ordinary specimen of hard bright coal. No ordinary fusain could be detected in it by microscopic examination, and it could not be crushed by simple pressure of the fingers.

None of the Analyses Are Normal to Seam

It will be seen that its composition differs considerably from that of the coal (Ravine) with which the piece of fusain was associated (see next column). It seems reasonable to suggest that coal associated with pieces of fusain may be somewhat different in composition from that of the coal of the seam itself.

One reason for the examination of this piece of fusain was the notably high percentage of sulphur it contained, and it may be remarked that the coal-like portion contained a considerably higher percentage of sulphur than the fusain portion. The conclusion we

TABLE V. ANALYSES OF CERTAIN COALS AND OF THE FUSAINS THEREIN

Bacon Mine—Upper King Coal

	Percentages Fusain	Percentages Coal
Moisture	1.23	2.16
Ash	10.86	3.72
Volatile matter	19.90	40.19
Volatile organic matter	18.67	38.03
Coke	80.10	59.81
Fixed carbon	69.24	66.09
Calorific value B.t.u., per lb	13,423	14,050
Carbon	77.30	76.96
Hydrogen	3.82	5.01
Nitrogen	0.79	1.62
Sulphur	1.62	1.98
Ash	11.00	3.80
Oxygen (by difference)	5.47	10.63
Carbon on moisture- and ash-free basis	86.7	80.0

The coal was bright and glossy, and contained some partings of ankerite. [Ankerite is a calcite composed of carbonate of lime, carbonate of magnesia, protoxide of iron carbonate and protoxide of manganese carbonate—*Editor*]. The fusain was bright, bulky and jet black in color.

Mountain Mine

	Percentages Fusain	Percentages Coal
Moisture	0.45	2.73
Ash	7.14	3.52
Volatile matter	9.52	26.46
Volatile organic matter	8.87	23.73
Coke	90.68	73.54
Fixed carbon	83.54	70.62
Calorific value B.t.u., per lb	13,968	15,040
Carbon	.....	81.94
Hydrogen	.....	5.28
Nitrogen	.....	1.16
Sulphur	.....	1.61
Ash	.....	3.62
Oxygen (by difference)	.....	6.39
Carbon on moisture- and ash-free basis	.....	85.0

The coal was exceedingly fragile, and some pyrites partings were present. The coke from the coal was bulky, porous and fragile.

Hell Hole Mine, Newtown—East End of Field

	Percentages Fusain	Percentages Coal
Moisture	0.70	1.94
Ash	6.71	2.67
Volatile matter	15.97	35.00
Volatile organic matter	15.27	33.06
Coke	84.03	65.00
Fixed carbon	77.32	62.33
Calorific value B.t.u., per lb	14,015	14,589
Carbon	83.26	82.25
Hydrogen	3.27	5.34
Nitrogen	0.84	1.62
Sulphur	3.36	1.02
Ash	6.76	2.73
Oxygen (by difference)	2.51	7.05
Carbon on moisture- and ash-free basis	89.3	84.5

The coal was black, shiny and hard, and contained a fair quantity of fusain. No ankeritic partings were present.

Arley Mine

	Percentages Fusain	Percentages Coal
Moisture	1.40	1.92
Ash	4.72	3.23
Volatile matter	13.21	35.34
Volatile organic matter	11.81	33.42
Coke	86.79	64.66
Fixed carbon	82.07	61.43
Calorific value B.t.u. per lb	14,700	14,740
Carbon	84.63	82.32
Hydrogen	3.24	5.51
Nitrogen	0.76	1.54
Sulphur	2.11	1.45
Ash	4.79	3.29
Oxygen (by difference)	4.47	5.89
Carbon on moisture- and ash-free basis	88.9	85.1

Clean, black, strong coal.

Ravine Mine

	Percentages Fusain	Percentages Coal
Moisture	1.50	2.42
Ash	11.22	4.05
Volatile matter	15.80	36.56
Volatile organic matter	14.30	34.14
Coke	84.20	63.44
Fixed carbon	72.98	59.39
Calorific value B.t.u., per lb	12,880	14,360
Carbon	76.85	78.42
Hydrogen	3.47	5.24
Nitrogen	0.73	1.50
Sulphur	2.85	2.28
Ash	11.41	4.15
Oxygen (by difference)	4.69	8.41
Carbon on moisture- and ash-free basis	86.8	81.8

Fairly strong black coal with ankerite partings and some thin pyritic bands. Gives a dense coke on coking.

wish to draw from the above values is that fusain may be pulverized with great ease, and that a high proportion of the resulting powder consists of material which will pass through a sieve of 1/60 mesh; further, material which will pass through such a sieve appears to be fusain in practically a pure form. This is shown clearly from the analyses, as the part between 1/60 and 1/90 mesh has practically the same composition as material which passes through a 1/90 sieve. Fusain from different sources appears to differ in the size of its particles.

Table V has been prepared to show the composition of a number of samples of fusain compared with the coal with which it is associated. The fusain was collected by breaking lumps of coal and brushing the material from the surfaces thus exposed. Proximate analyses were carried out on the air-dried material, and ultimate analyses on the material dried at 105 deg. C. for one hour.

Composition of the Dusts from Mines

As we have been unable to find any reference to the percentage of fusain in mine dusts it appeared to be of interest to determine the amount present. A number of samples of dust were obtained from two separate pits of the Arley Mine, the first sample being collected from the floor of the mine, within about ten yards from the working face. Every care was taken to obtain a representative sample of dust, and for the purposes of this test a place which had not been stone-dusted was chosen. It has been found that the volatile organic matter in artificial mixtures of fusain and coal varies with the proportion of the constituent present within the limits of experimental error.

The percentages of fusain present in the dusts were calculated from the following:—

Fusain: Volatile organic matter on ash- and moisture-free basis = 12 per cent.

Coal: Volatile organic matter on ash- and moisture-free basis = 35 per cent.

It has been found that the volatile organic matter of mixtures of fusain and coal agree with that obtained by calculating the values upon the percentage of each constituent, assuming its volatile organic matter to be as stated. Where it is proposed to carry out similar work it is necessary to analyze the pure fusain and pure coal of any particular seam, when it becomes possible to carry out the above calculation.

TABLE VI. ANALYSIS OF SAMPLES OF MINE DUST

First Pit, Arley Mine

	Percentages — First Sample	Second Sample
Moisture	1.0	1.2
Ash	20.4	24.4
Volatile matter	21.7	21.4
Volatile organic matter	20.7[1]	20.2
Coke	78.3	78.6
Fixed carbon	57.9	54.2
Fusain present	38	34

Second Pit, Arley Mine

	Percentages — Sample No. 1	Sample No. 2	Sample No. 3	Sample No. 4
Moisture	1.3	0.9	1.4	1.4
Ash	28.7	10.1	23.2	19.2
Volatile matter	21.8	22.5	25.0	25.4
Volatile organic matter	20.5	21.6	23.6	24.0
Coke	78.2	77.5	75.0	74.6
Fixed carbon	49.5	67.4	51.8	55.4
Fusain present	25	47	16	21

[1] Volatile organic matter on a moisture- and ash-free basis becomes from calculation 26.33; for the moisture and ash add to 21.44, leaving 78.6 as the divisor and 20.7 as dividend, 26.33 being the quotient—*Editor.*

TABLE VII. PROXIMATE ANALYSES OF DUST MADE IN PREPARING ARLEY COAL

	Per Cent
Moisture	1.2
Ash	9.1
Volatile matter	22.6
Volatile organic matter	21.4
Coke	77.4
Fixed carbon	68.3
Fusain	49

Quantitative Sieving Test

	Per Cent
Above 1/30 mesh sieve	0
1/30 to 1/60 mesh sieve	1.5
1/60 to 1/90 mesh sieve	3.0
Through 1/90 mesh sieve	95.5

Analysis

Mesh of Sieve. 1/30 to 1/90	Per Cent	Mesh of Sieve. Through 1/90.	Per Cent
Moisture	2.1	Moisture	1.2
Ash	7.0	Ash	9.6
Volatile matter	31.3	Volatile matter	21.4
Volatile organic matter	29.2	Volatile organic matter	20.2
Coke	68.7	Coke	78.6
Fixed carbon	61.7	Fixed carbon	69.0
Fusain	13	Fusain	54

In the case of the samples from the second pit a special board was placed on the floor near to the working face and the dust which accumulated upon it used for the analysis. It will be observed that all the samples of dust contained a low percentage of volatile organic matter, and when this value was calculated upon an ash- and water-free basis it was still considerably below the amount present in the coal. The reason for this lies in the fact that the dust contains a proportion of fusain, which reduces the volatile matter of the dust. The amount of fusain present has been calculated upon the assumption that it contained 12 per cent of volatile organic matter. These values were obtained under the conditions of the test for volatile matter which we adopted throughout the whole of this work.

Dust from Collector of Picking Table

Dust formed when coal was being hand picked on a belt conveyor or at a time when the coal was being broken by simple fracture and had been separated from the air by means of a dust collector was also tested. The dust was sieved quantitatively, and an average sample then analyzed. The two main fractions from the sieving test where also analyzed, the proximate analyses being given in Table VII.

Dust from Slurry Separators of a Washery

The coal being prepared when this sample was collected had been extracted in the Arley mine. It will be observed that the dust is in an extremely fine state of division, and contained approximately 50 per cent of fusain. The colliery proprietors recognize that this dust is liable to take fire and to smolder.

In one particular slurry tank the fine dust from the washery and the dust from a dust collector are collected

TABLE VIII. ANALYSES OF SLURRY OR DANT TAKEN FROM TANK AT NO. 1 WASHERY

Slurry	Moisture	Ash	Volatile Organic Matter	Percentage of Fusain
0 in. = 6 in.	1.90	6.0	21.3	52
6 in. = 12 in.	2.0	10.9	26.1	22
12 in. = 18 in.	7.7	10.6	24.0	24
18 in. = 24 in.	6.8	10.6	25.4	19
24 in. = 30 in.	3.4	9.6	27.5	15
30 in. = 36 in.	5.3	11.2	26.4	15
36 in. = 42 in.	7.1	13.4	24.0	21
42 in. = 48 in.	8.3	13.3	21.9	31

together as slurry and the material is allowed to settle throughout a period of one week; during this period about 100 tons of slurry accumulates. A typical tank containing 100 tons of it was taken and a section carefully cut from top to bottom, each successive 6 in. in depth being collected in a separate vessel. The analyses of the material in the slurry tank are given in Table VIII, the fusain being calculated as mentioned earlier.

The above analyses show conclusively that most of the material collected in the slurry tank contains a relatively high percentage of fusain. It is well known that such material is difficult to dry, and this may be due to the presence of the fusain. When it is realized that fusain yields a non-coherent coke it will be seen that this fine material has a deleterious effect upon coke.

It has been shown by A. Grounds and by one of us that very finely divided inert material possesses the property of reducing the caking power of coal, and it follows that as fusain possesses no caking power the coke produced from coal containing any quantity will be less coherent than that obtained from pure coal. It may be pointed out that the top 6 in. of material collected in the above slurry tank yielded coke which was absolutely deficient in caking power, although the coal with which it was associated has an agglutinating value that could only be destroyed by an addition of fourteen parts of sand.

Every section of the above tank yielded coke which was less coherent than the pure coal. It is the practice where the coal is being used for coke making to mix the fine slurry with the coal previous to carbonization. Our tests indicate that the effect of the fine material is probably much more pronounced than is usually recognized and that precautions should be taken to insure efficient distribution of the fine material throughout the whole mass of the coal. If distinct layers of slurry are allowed to form the coke produced will possess distinct lines of weakness, and consequently be more fragile.

From the experiments it is clear that in studying the properties of coal dusts a sharp distinction must be drawn between dusts produced by the natural fracture of the coal and those formed by ordinary pulverization.

It would appear that when a fire has been started in fusain or in mixtures of fusain and coal dust the zone of combustion rapidly traverses the mass, and consequently the presence of fusian in the dust in the goaf and in mines generally may have a marked influence upon the tendency any particular seam has to produce gob fires and for the zone of combustion to spread.

Layout for Dual Shafts of Large Tonnage

By Robert Z. Virgin*
Pittsburgh, Pa.

THE most important detail of any shaft mine, after the shafts are sunk, is the general system of entries and tracks below the surface, known as the shaft layout. This design must provide for many requirements, some of which are of vital importance to the efficiency of operation and determinative of the possibilities of the plant as a profit maker.

Hereunder are a few considerations that need careful attention: Support for the shaft, usually known as the shaft pillar; ample space for standing loads and empties, together with efficient machinery and grades for handling both; ample air space in these entries when filled with cars, ample number of air entries so as to reduce velocity, enlarged sectional area from the shaft to the main splits, and exclusion of all doors.

The accompanying illustration shows these details carefully worked out. During normal operation the coal will be hoisted up the shaft marked M.S. (main shaft) with empties returning as shown. In case it becomes necessary to have more storage room for empties, in order to keep a constant flow of output, such space can be obtained by extending the kick-back entry as shown by the dotted lines. When this is done a double track in this entry will provide space for from seventy-five to one hundred mine cars, depending, of course, upon the length of the car in use at the mine.

If an emergency arises which incapacitates the main shaft either temporarily or for an extended period the output can be maintained constant by hoisting in the second shaft marked A.S. (airshaft). This shaft also has plenty of available space for more empty car storage if required.

The three-entry system is shown extending east and west, and the five-entry system north and south. This latter system is a requirement of the mine laws in Pennsylvania where main entries extend for 5,000 ft.

A manway is provided from the shafts extending throughout the entire length of the main entries north and south, and although not shown, overcasts or bridges are built from the right-side entries over the haulage entries, making it possible to keep the traveling way free from grade crossings.

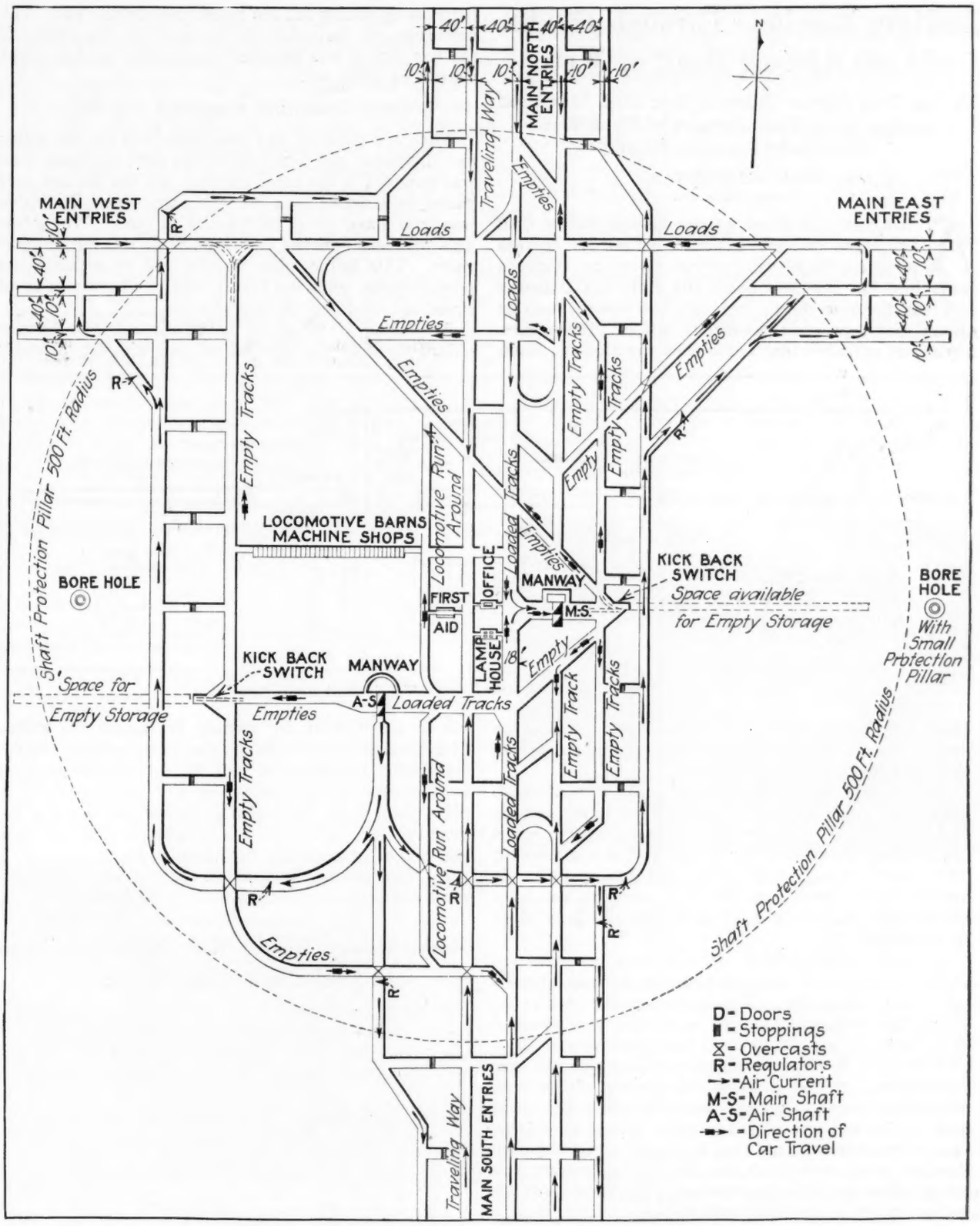
The main-shaft protection pillar is 1,000 ft. in diameter, which provides well for future requirements. It also furnishes ample space and protection for machine shop, hospital, lamp house, stables or motor barns, office for foreman and other possible demands that may be made upon the pillar.

The shaft protection pillar is calculated at a foot in radius for each foot in depth of shaft. This, after due consideration to the weights of the different strata overlying the coal measure, which is figured as being about 6 ft. thick, seems to give a generous pillar support for present conditions and to provide for future possibilities.

On the north and south mains the two outside pillars are punctured by cut-throughs for air at legal distances, while the two inside pillars are pierced by cross-cuts at twice this distance. This of course saves the time and expense necessary to drive such cross-cuts, and still provides for operation within the legal requirements.

The three center mains north and south are not bratticed at all. This makes an easier path for the air currents, and allows them to go in and out of these cross-cuts as the necessity arises. The location of the trips of loads and empties in the haulageways is able to influence greatly the amount of air traveling in any

*Assistant professor of coal mining, Carnegie Institue of Technology.



LANDING OF TWIN SHAFTS, BOTH OF WHICH ARE TO DELIVER COAL

The main shaft is approached by a short roadway at right angles to the main side tracks, so that coal can come from both north and south. Some of the empties on the north side return by a road which passes under the north-side track for loaded cars. North and south are five entries and east and west three entries.

of the headings. If this were not done the trains would act like loose pistons in a cylinder.

A curved cross-cut is provided on each side of the mine to permit of turning locomotives or cars without taking them to the surface. This is sometimes necessary as a result of wrecks and derailments. End bumpers on locomotives are occasionally broken. They may be patched, of course, with a substantial plate, but nevertheless it will often be preferable for several reasons to work the unpatched end next to the train. This curved cross-cut provides the means by which this suggested turn-around may be conveniently made.

Drilling Borehole Through 136 Ft. of Coal Against Head of Water

To Tap Two Barrier Pillars a Core Drill Was Used Making 3⅝ in. Hole—Pressure of Water Was Kept Under Complete Control

BY D. C. ASHMEAD
Wilkes-Barre, Pa.

AT the Hazleton mines of the Lehigh Valley Coal Co. three distinct water basins exist. In this mine boreholes were driven from the Hazleton basin into the Diamond basin and from the Diamond into the Stockton basin, through the several barrier pillars that separate the original mines. These boreholes were so driven that water from the Stockton basin could be drained into the Diamond basin thence be drawn into the Hazleton basin, where the pumps for all three are located.

Had no such arrangements been made it would have been necessary to allow the water to rise in each of the two upper basins till it overflowed and passed through the working portion of the mine into the basin below. This would have impeded work and consequently the various basins were connected by a series of boreholes so arranged that the flow of water through them could be regulated.

The method employed in driving these boreholes and in the regulation of the water passing through them is extremely interesting. The accompanying illustration shows the procedure followed in driving the holes. A 6-in. borehole was driven into the barrier pillar for a distance of 6 ft. A piece of acid-resisting pipe was then inserted and grouted in place. To the end of this pipe, extending into the gangway, was attached a 4-in. valve and on its end was placed a guide pipe. This latter was suspended from the roof by means of a turnbuckle hanger which permitted the pipe to be brought into exact alignment with the borehole. The valve itself was supported by a concrete footing.

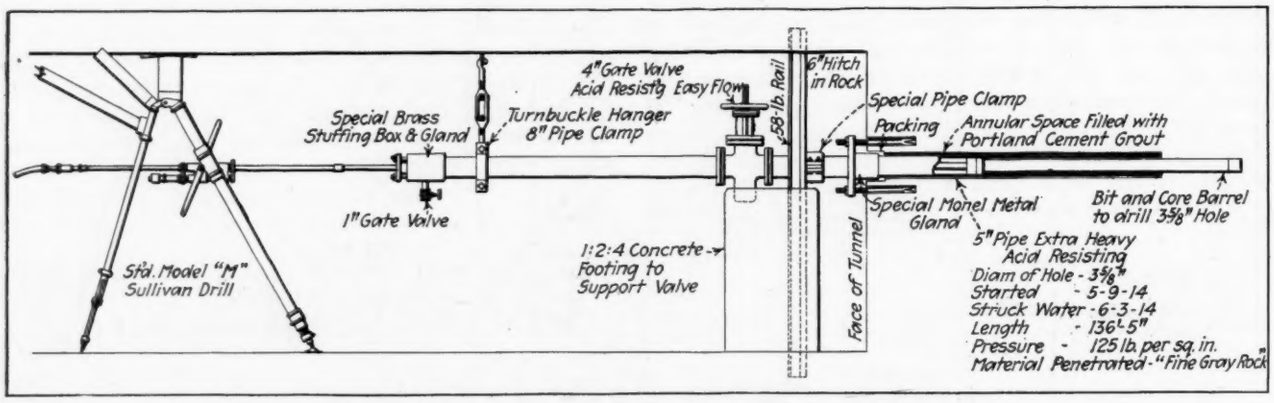
In order to hold the pipe in place against the pressure of the water a 58-lb. rail was set in concrete in a vertical position. This extended into a hitch cut into the roof. A pipe clamp encircled the pipe and rested against the rail.

At the end of the short piece of pipe suspended from the roof was placed a stuffing box through which a core drill could operate. This drill was designed to make a hole 3⅜ in. in diameter. As soon as these arrangements were made the drilling was commenced, the core being removed by taking out the end of the stuffing box. The extensions of the rod could be made on the inside of the box, but it was necessary to remove it when cores were to be taken out.

DROVE BOREHOLES FIVE FEET IN A DAY

When the borehole had penetrated the barrier pillar and the water had been tapped the drill extension pipe was removed in the usual manner, and the bit and core barrel were drawn back into the guide pipe. The valve was then closed to cut off the flow of water. The guide pipe was next removed and in its place was put another valve. This latter valve is employed to regulate the flow of water, while the first is normally kept open at all times and used only in case of emergency.

By boring a series of holes through the barrier pillars dividing the two mines, any amount of water can be let through by opening or closing the valves. The borehole illustrated in the accompanying figures was driven a distance of 136½ ft. and was completed in twenty-seven days. The pressure of water was 125 lb. per square inch, the material penetrated being a fine gray rock. In this work a Sullivan core drill was used, the method of mounting this machine being as shown in the accompanying illustration. All of the permanent pipes and valves are of acid-resisting material.


4" Gate Valve
Acid Resistg Easy Flow
58-lb. Rail
6" Hitch in Rock
Special Pipe Clamp
Packing
Annular Space Filled with Portland Cement Grout
Special Brass Stuffing Box & Gland
Turnbuckle Hanger 8" Pipe Clamp
1" Gate Valve
Special Monel Metal Gland
Bit and Core Barrel to drill 3⅝" Hole
5" Pipe Extra Heavy Acid Resisting
Diam of Hole - 3⅝"
Started - 5-9-14
Struck Water - 6-3-14
Length - 136' 5"
Pressure - 125 lb. per sq. in.
Material Penetrated - "Fine Gray Rock"
Std. Model "M" Sullivan Drill
1:2:4 Concrete Footing to Support Valve
Face of Tunnel

EQUIPMENT TO TAP A HEAVY FLOW OF WATER UNDER HIGH PRESSURE

Brake Device Would Make Riding on Front End of Car Unnecessary

THE brake rig shown in the accompanying illustration has been invented and patented by John A. Hebb and William J. McDade, of Orient, Pa. As may be seen in the illustration, the mechanism consists of bell-crank levers at both ends of the car, joined by two chains to a lever connecting to a rocker shaft upon either side of the car. The bell-crank lever may termi-

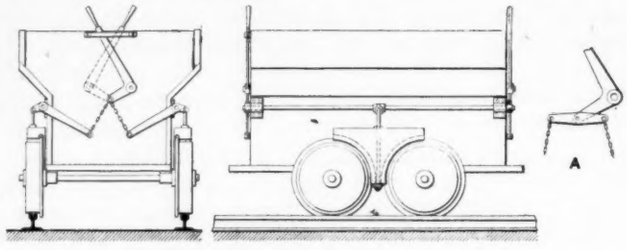


FIG. 1. BRAKE LEVERS PLACED AT END OF CAR
Brake can be set from either end of the car, making it unnecessary to ride the front end with the attendant dangers of that practice

nate in an equalizer consisting of a lever pivoted in the center while the operating chains attach to either end. This arrangement, of course, equalizes the pressure upon the brake blocks upon either side of the car. In either case, however, pulling the bell-crank lever to one side applies the brakes to the car, while releasing it will permit the braking pressure to be relieved.

It is not feasible to place the operating lever upon the end of the car if the car is to have a lifting end gate. In order to overcome this difficulty the inventors have perfected a design wherein the operating levers are placed at the side of the car near either end as shown in Fig. 2. This design accomplishes practically the same result as the one shown in Fig. 1 but places the lever at the side of the car instead of upon the end.

The type of brake block shown in both accompanying figures is a shape common to many mining regions. On the other hand this variety of brake device is not employed upon all mine cars. The lever mechanism, however, can be applied with equal ease to either this type of block or those operating upon the toggle-joint principle.

It was recognized by the inventors of this device that the habit or practice of brakemen and trip riders of riding upon the formard bumper of the car was a prolific source of accidents. It is believed by some that 80 per cent of the accidents occurring to men employed in this

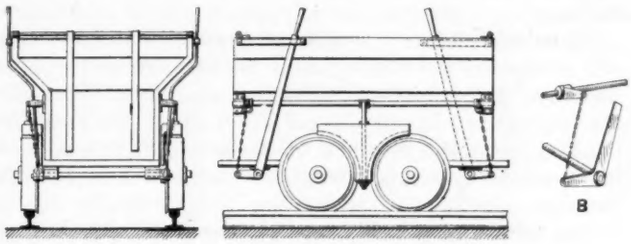


FIG. 2. BRAKE DEVICE WITH LEVER AT SIDE
Where there is a lifting end gate the brake levers are set on the side of the car so as to leave the gate free to be opened when being dumped or loaded.

position result directly or indirectly from this practice. Either of the types of braking devices here shown makes it unnecessary for the brakemen to climb upon or ride upon the front bumper of any car, as the brakes may be applied with equal facility from either end.

Two Pins Keep Car Door Shut, One Being Freed While Trip Stands

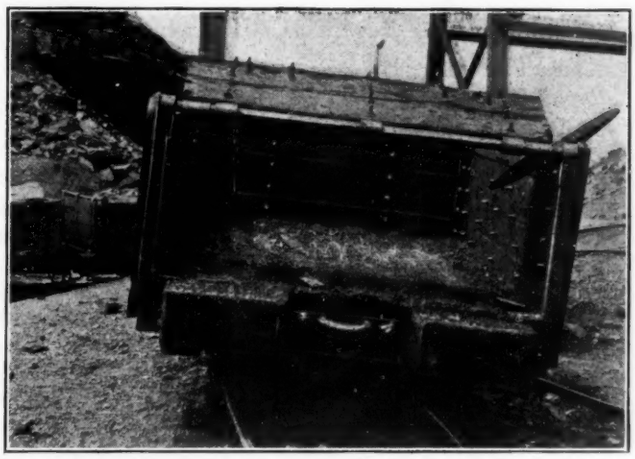
A Successful Attempt to Keep the End Gates from Dragging the Rest of the Mine Car Into the Repair Shop

SIMPLICITY, especially if accomplished with greater effectiveness and decreased cost, is as highly desirable in mining as in other industries. Probably no part of a mine car gives more trouble and costs more for upkeep than does the door. Defective doors often spill coal along the track or come entirely open, discharging a portion of the contents of the car. Much good coal is thus wasted and a considerable expense is

MINE CAR DOOR WITH TWO FASTENINGS
On the left is a chain-pin which fits into a hole in a small strap which is held in place by a chain attached to the car floor. This is loosened when the car reaches the dumping track. On the other side is a lever, having a pin that similarly fits into a hole in another strap, which is held in place by a chain like that on the other side. This lever is struck when the dump is reached, releasing the door.

incurred in clearing up the mine roads. Furthermore in many cases cars are sent to the shop solely for the repair or renewal of the door.

The Jermyn Coal Co., operating near Scranton, Pa., although probably no more afflicted by this evil than



DOOR THROWN BACK AND HELD BY SPRAG
On the floor of the car can be seen the two 15-inch chains to the ends of which the short pieces of strap iron are attached. Each strap is pierced with a half-inch hole through which a pin is thrust after the door has been closed and the strap slipped through a slot in the door.

other coal producers, decided if possible to remedy it. The accompanying illustrations, however, do not show the cars of the Jermyn company that introduced the changes but those of an affiliated concern, the Suffolk Coal Co., at North Avoca, Pa., which adopted it.

The door is hung from the top, as is the common practice, by means of a bearing bar and three straps, the improvement in construction consisting merely of the device for keeping the door closed. As may be noted in the accompanying illustrations, two rectangular plates ¼ x 6 x 8½ in. are bolted to the lower portion of the door. Each plate is provided with a slot 2½ in. long and ½ in. wide. Of course the plank behind each of the plates is similarly slotted.

To one of the plates is bolted a lever, one end of which carries a pin. Fastened to the floor of the car are two chains each 15 in. long and terminating in a piece of ⅜ x 2¼-in. strap iron with a ½-in. hole in its free end. A third chain, attached on the outside of the door by a bolt through one of the straps, carries a pin at its end.

In operation the door is dropped into place, the irons

attached to the floor chains are passed through the slots in the plank and the outside plates; and the pins, one on the chain and one on the lever, are slipped into the holes of the chain straps. The car is then ready for loading.

When a loaded trip arrives at the dump and the cars are uncoupled the chain pin is withdrawn, leaving the door held in position by the lever pin only. When the car has arrived in place upon the dump and is about to be discharged the free end of the lever is given a light blow, removing its pin from the fastener and freeing the door.

One advantage of this type of door fastening is that it does not become loose so that the door can swing open in transit. In fact the door cannot open except when both pins are withdrawn. The parts that receive most rapid wear the the pins, and these can be renewed quickly and cheaply, it being unnecessary to send the car to the shop to have this done.

Cutter Chain with Reversible Bits That Keep Tight and Wear Pointed

Bits Are Not Only Reversible but Double-Pointed and Can Be Turned End for End—Malleable Iron Wedge Saves Set Screws

GREAT progress has been made during the last fifteen years in increasing the efficiency of coal-cutting machines, but little or no improvement has been made upon the active element itself—that is, the cutting chain. Realizing that the capacity of a mining machine depends largely upon the chain, Link-Belt engineers during the last seven years have made an exhaustive study of chain cutting of coal, developing a chain with certain features that have already fully proved their value.

The features that must be considered if a successful coal-cutting chain is to be constructed are:

(1) The angle at which the bit engages the coal. The bit must have sufficient cutting clearance to eliminate excessive friction caused by a dull cutting edge dragging the coal. The bit should cut and not scrape.

(2) The construction of the chain so that it will hold the bit in the desired position.

(3) The proportioning and manufacture of the chain so that it will withstand the hard usage imposed when encountering sulphur, jack rock, clay band or rock.

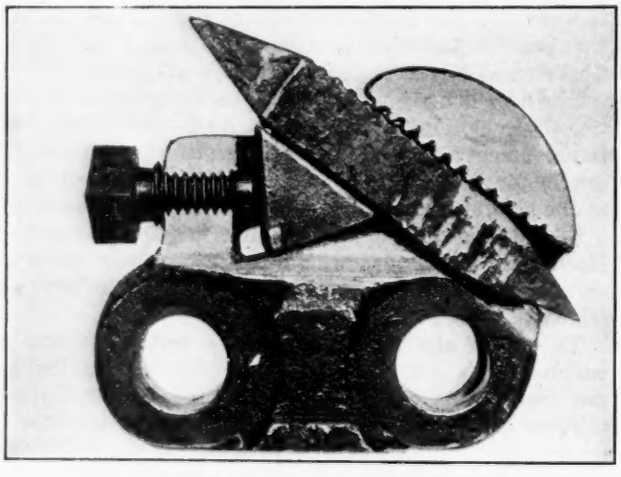
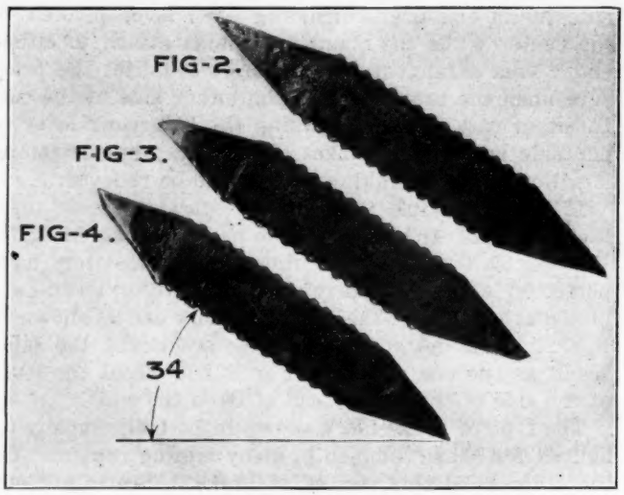


FIG. 1. ASSEMBLED LUG, IN CROSS-SECTION
Set screw presses against a wedge instead of against the bit and so is in less strain than under ordinary conditions. The wedges are so placed that they cannot drop out.



FIGS. 2, 3 AND 4. BITS IN WORKING POSITION
Fig. 2 is a bit newly forged; Fig. 3 is a bit that has mined a large quantity of coal and Fig. 4 the same bit turned over sidewise and ready for further cutting.

Bit Sharpens Itself in Cutting Coal

The principal advantage claimed for the Link-Belt chain is the self-sharpening bit. The angle at which this bit engages the coal is such that while the top side is wearing from its contact with the body of the coal the bottom side of the point is being sharpened. A sharp cutting edge always is available by merely turning the bit over sidewise. This sidewise reversal can be repeated until the point of the bit becomes quite blunt; and as the bits are double ended they can be turned endwise when one end becomes dull.

Fig. 1 shows the assembled lug in partial section. The edges of the bit are corrugated and fit into corresponding corrugations in the lug, thus eliminating all possibility of slip. A special and effective method of clamping the bit is obtained by inserting a malleable iron wedge between it and the set screw. This wedge relieves this screw of the vibrating action of the bit, thus eliminating its tendency to work loose, to the annoyance of the cutter.

Furthermore, the point of the set screw is not injured, as it is in cases where it engages the hard steel bit. The set screw has a snug fit in the lug, and thus a comparatively light pull upon the screw is sufficient to hold the wedge and bit in place. The set screw is not twisted off, as sometimes happens when it directly engages a smooth bit and has to be screwed so tight that it is bound to be injured. Though accessible for repairs, the wedges cannot drop out of the lug even if a bit is dislodged. There is ample room between the end of the wedge and the casting to release the bit, and the bug dust finds a ready exit through the escapement hole provided for this purpose in the lug.

Clamp Holds Bits So They Are Not Lost

The advantages gained by this method of clamping the bit are: (1) Ability to hold the bit in its desired position. (2) Reduction of the loss of bits occasioned by set screws working loose. (3) A prolonged life of the set screw. (4) An increased efficiency of the machine men.

Figs. 2, 3 and 4 show the bits in their working positions. The bit shown in Fig. 2 is in its forged or sharp-

ened condition, ready to be placed in the lug. Fig. 3 shows the same bit after it has cut approximately three times the amount of coal cut by the ordinary or curved type of bit. Note that the point has been worn to a shape similar to that which would be obtained by holding the bit against an emery wheel. If the bit thus worn is turned over sidewise, as shown in Fig. 4, a sharpened edge with renewed cutting clearance is presented.

The correct cutting angle always is assured, as the position of the bit in the luglink is fixed. Furthermore, as the bit is straight, less skill is demanded of the blacksmith in sharpening it and less time is required to do the work. The ability of the bit to sharpen itself is contingent entirely upon the angle at which it engages the coal. The chemical ayalysis of the steel is the same as that of all other bit material and will respond to the usual tempering practice.

The lugs are made of a special steel casting. The chemical analysis and heat treatment have been developed by a careful investigation of results obtained in actual service. The lugs are hot-pressed to size (not machined), so as to improve the physical condition of the metal before heat treatment. The wearing surfaces are case-hardened.

The strap links are drop-forged from a medium-carbon steel. All engaging surfaces are accurately machined to fit the guides. The chain has seven positions, the assembly or lacing of the chain being governed by the nature of the coal to be cut. Chains can be supplied for all existing machines, and used without altering the cutter arm or sprockets. The claims made for this chain are:—Greater production, less power required and a prolongation of life for both bits and chain.

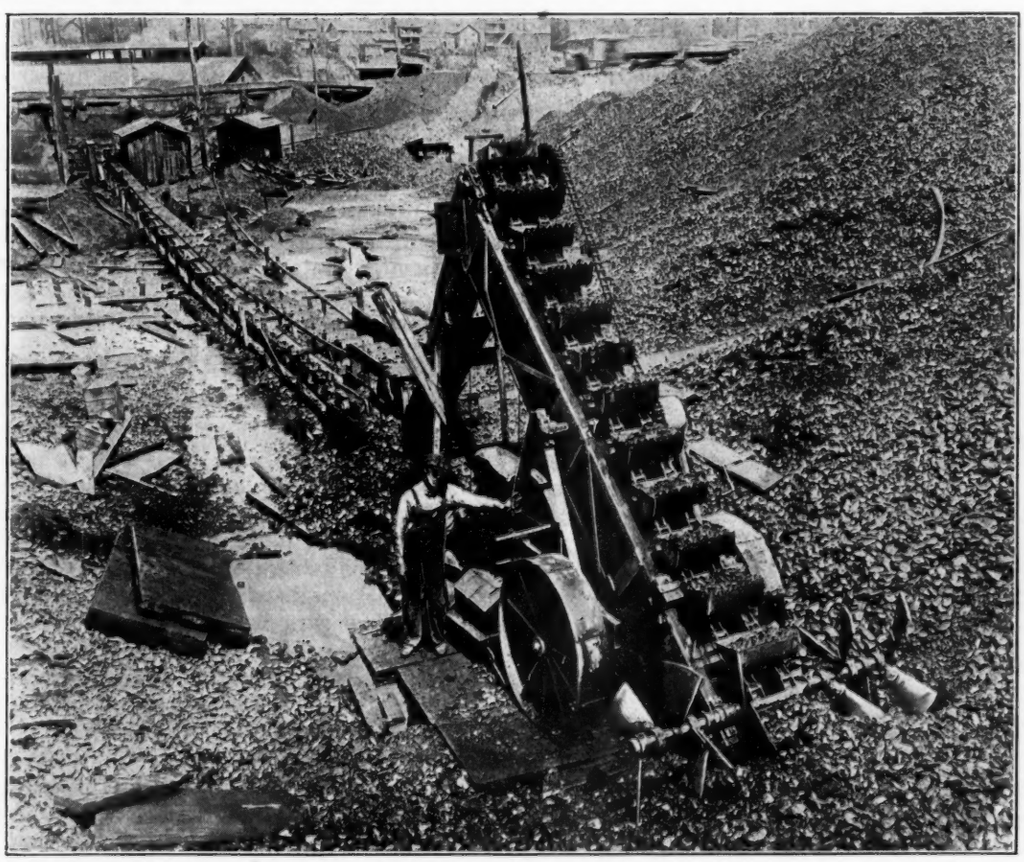
Wagon Loader Used for Attacking A Hill of Anthracite Culm

Coal Is Crowded to the Conveyor by Several Propeller Blades Which Aid in Cutting a Path Through the Coal Pile

THAT numerous class of material movers commonly designated wagon loaders have not received the attention from mine operators that they deserve, their uses for the stocking and loading of coke, coal and of culm being almost endless. In these days there is no advantage in doing work by hand. A man whose wage is $5 a day receives 62c. an hour. At best he shovels two tons in that length of time, for 16 tons a day is fair work for a day's shoveling. The moving of coal, therefore, costs 31c. a ton, which is a large cost when a machine will load the same amount for 1½c. including both power and labor.

Moreover it is hard to get men to shovel in the hot sun or in a drizzle of rain, whereas with a machine the work will go merrily along, rain or shine, and men will not be hard to keep on the job. The trouble with the more laborious jobs is that one has to hunt long to find someone to do them, and before that someone is found, two or three men may be lost in trying to convince them that they should perform it. The wagon loader is a great "labor-easer."

The Haiss wagon loader, manufactured by George Haiss Manufacturing Co., 141st St. and Rider Ave., New York City, and illustrated in Fig. 1, is a self-feeding, self-propelling and self-crowding machine. It is shown at work at the Von Storch Collieries near Scranton, Pa. It was started originally at a point in



Wagon Loader

Where wagons have to be loaded with material of fine or medium size the wagon loader has long been in operation. Its use around coal merchandising and coal-storage yards has been common but it has not found as yet the place it merits around the mines. Here it is shown feeding a breaker conveyor line with culm, the propeller blades breaking up the pile and feeding culm to the buckets

the background near the two small huts. All the open ground now seen in the picture was buried under a hill of culm when the wagon loader began its reclamation work. After the self-feeding and loading machine had dug out a straight path for a considerable distance, and began forming a deep valley, it became necesary to extend the flight conveyor the full length of the excavated "path."

Then, instead of delivering culm at the extreme end of the flight conveyor, the "path-digging" wagon loader was steered around and "crowded" into the culm in a direction at right angles to the line of the conveyor. Material may be delivered to this type of flight conveyor anywhere along its entire length. Gradually, by working upon either side of the flight conveyor, the valley or cut began to broaden out under the rapid and continuous action of the loaders. By the use of this loader a ton of material can be dug in one minute with a half cent's worth of power and with only one man for the operation of the machine.

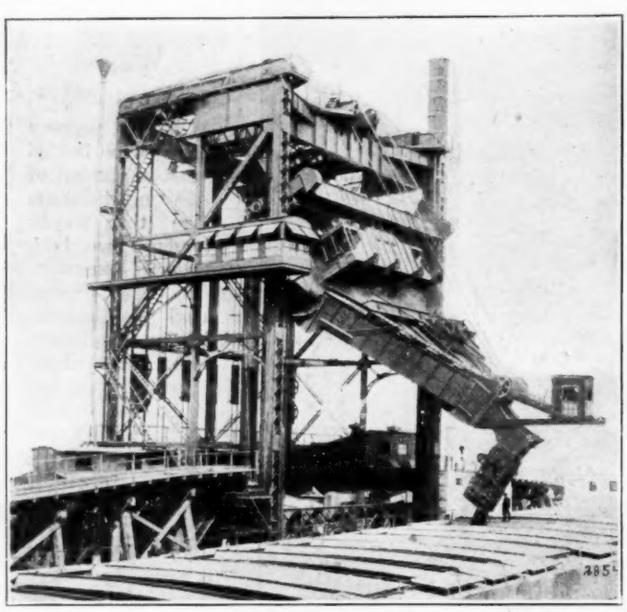
The "path-digging" wagon loader is equipped with patented revolving propeller blades which are pitched at a proper angle to the center line of the long propeller shaft. The blades on one side of the wagon loader have an equal and opposite pitch to those on the other, and because of this arrangement material coming within reach of the self-feeding blades will be pushed toward the center, where every bucket must dig up its full load. A similar loader is at work at the Leggitt's Creek Colliery in the same city.

Bulk-Cargo Handling on the Atlantic Coast

One Installation Will Transfer 30 to 45 Cars Per Hour from Car to Hold—Another Will Unload Nearly 800 Tons Per Hour from the Hold of a Ship, Loading It Into Cars—The First Plant Lifts the Car, Inverts It and Delivers the Coal by Chutes to the Point Desired

By H. N. Turnbull
Cleveland, Ohio

In the last four years shippers have shown increasing interest in finding cheaper and more rapid means for handling heavy and bulky materials. Some twenty years ago the manufacturers of loading and unloading apparatus started to meet needs of this type and succeeded in getting a limited number of installations completed as early as 1902. As the handling of coal and iron ore furnished the most immediate problems for which a solution was demanded they were the first commodities for which the new types of transferring machinery were installed.



TYPE OF CAR DUMP MARYLAND R.R. IS ERECTING

Note the upturned gondola opposite the little house with awnings several feet above the trestled car approach. The gondola has been lifted several feet and turned over. The photographer has caught it in the instant of discharging into the immense chutes below it and thence into the narrow snout-like passageway over the hatch. The installation actually shown is the property of the Pennsylvania R.R. and is located at Sandusky, Ohio. At a coke dock of the Youngstown Steel & Tube Co. cars are lifted 62 ft. before discharging.

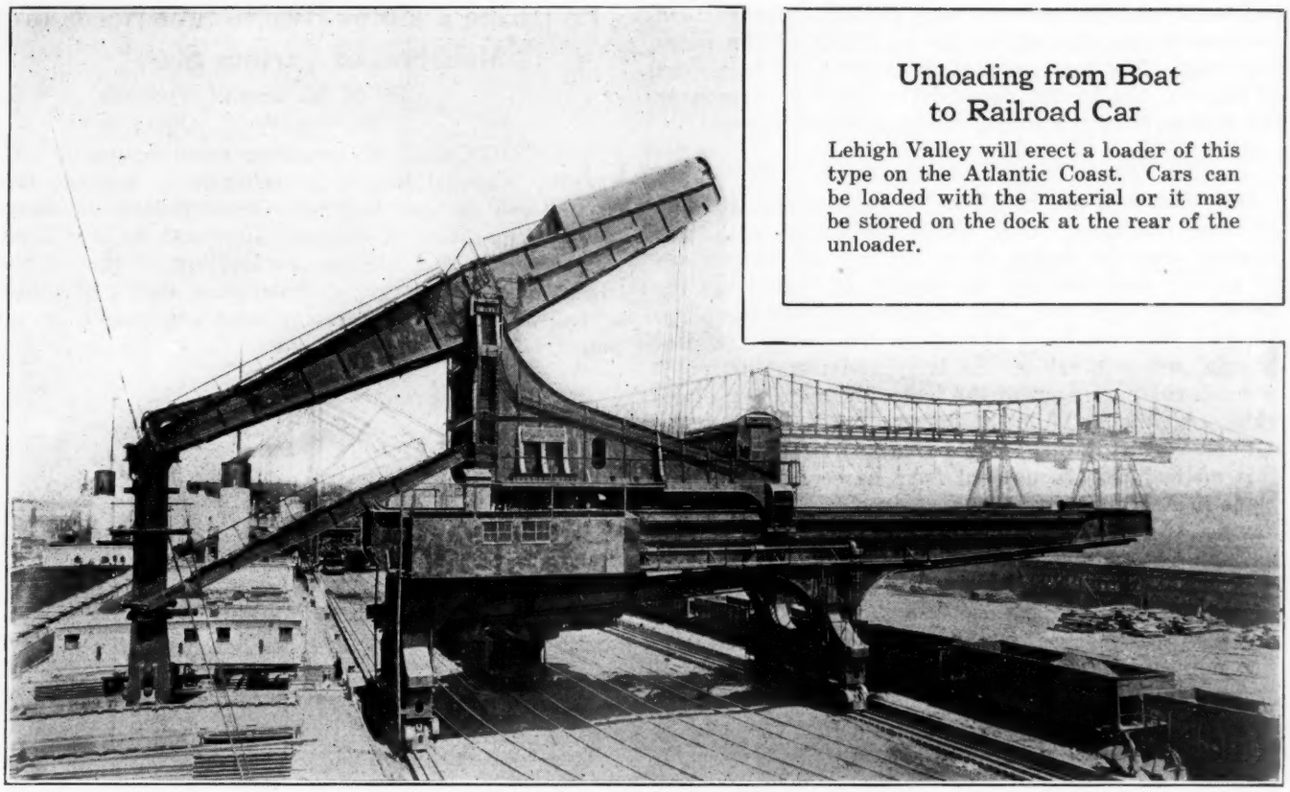
Necessity for such development centered around the Great Lakes, and there the pioneer installations were erected. The short season during which ships could sail from the Minnesota, Wisconsin and Michigan ore fields to the blast furnaces of the Lower Lake and to the ports tributary to the Pittsburgh district required that a twelve months' supply of ore be moved in about seven months. The coal requirement of the states bordering on the iron-ore region was largely taken from the lower Lake on the return trip of the ore boats.

In order to load and unload these vessels with the minimum of equipment and with the lowest possible operating expense per ton it was plainly necessary to provide machinery for cheap and rapid discharge of cargo from ship to dock or railroad and vice versa, the length of time the ship was tied up in the Lake ports being a vital factor in the costs of operation. The result has been that the plants handling bulk cargo have been brought to a high state of development and have been planned so that large quantities of material can be handled with few units and minimum pier space.

At Close of Century 500-Ton Duty Attained

In the late nineties the Wellman-Seaver-Morgan Co. introduced its ore unloader. Each machine was capable of handling upward of five hundred tons of ore per hour. At about the same time car dumpers were developed that would overturn standard railway cars and discharge their contents. The latter have been improved until at present they will handle thirty dumps per hour or more, some installations handling as much as 3,000 tons per hour net, two cars being discharged simultaneously.

Conditions resulting largely from the European war developed an interest in these matters along the coast line as keen as that exhibited on the Great Lakes. Prior to our participation in the hostilities a few installations had been made on the Atlantic seaboard especially for the purpose of loading cargo and bunker coal. Rising labor costs and the necessity for a rapid "turn around"



Unloading from Boat to Railroad Car

Lehigh Valley will erect a loader of this type on the Atlantic Coast. Cars can be loaded with the material or it may be stored on the dock at the rear of the unloader.

on the comparatively few vessels available brought the issue of improved dock facilities prominently forward. The chief considerations involved were those of time, tonnage capacity over a given water front, and cost per ton. All the above items in the problem are satisfactorily taken care of by equipment of the type previously mentioned. What was still more vital, the equipment met the problem arising from the fact that the normal volume of labor was unobtainable at any price.

To Lift and Invert 100-Ton Cars

Two installations now about to be erected on the Atlantic Coast have interesting features. One will be installed for the Western Maryland Railroad Co. at Port Covington, Baltimore, Md. It will have a Wellman car dumper to handle 100-ton cars and will be the first electrically-operated lifting dumper for seaboard coal handling ever erected. The lifting mechanism is designed to raise the railroad car high enough before overturning to cause the coal to run down the apron and chute into the ship's hold, as illustrated. Dumping directly to the ship eliminates breakage and waste arising from rehandling. The entire cargo is trimmed without the use of hand labor.

The machine consists essentially of a rectangular framework supporting a rotating cradle in which the loaded railroad car is held while discharging. A counterweight device, entirely automatic in action, clamps the car to the cradle, which is inverted by the revolving mechanism, carrying the car with it. The top of the cradle forms a chute for directing the material as it flows outward.

This installation will have a nominal capacity of thirty to forty-five cars per hour. It will handle cargo and bunker coal, principally for export. The coal will be delivered to the dumper by the Western Maryland R.R. and will come from the West Virginia, Virginia and Pennsylvania fields. One million tons will be handled annually, with a probable increase to twice that capacity later.

Fifteen-Ton Bucket Every Fifty Seconds

Another installation is designed for ore handling but it carries suggestions for the transference of coal in bulk. It will be owned by the Lehigh Valley Railroad Co. and will have an automatic ore unloader carrying a 15-ton clamshell bucket on the unloader leg and is designed to make a complete cycle or round trip in fifty seconds. This machine is electrically operated throughout.

Automatic unloaders of this type have proved through many years of service to be among the most successful devices for removing ore cargoes from such steamers as are fitted with suitable hatches. Although of immense proportions, the design has been simplified and the control perfected to such a point that the machine is the last word in delicacy of manipulation and operation.

The unloader consists of a main framework mounted on trucks which travel along the runway rails located on the dock. The main framework extends back beyond the rear runway over a temporary storage pile, where the ore can be discharged if desired. From this point it is picked up by the ore bridge and carried to the stock pile. Between the front and rear runways space is provided for railroad tracks where ore-carrying cars are placed under the machines and loaded with ore for transportation to the furnace plants.

The girders of the main framework form a support for runway rails, on which a trolley travels. This trolley supports a walking beam, from the outer end of which a stiff bucket leg depends. At the lower end of this leg is the bucket, which is operated by machinery located on the walking beam. All horizontal movements of the bucket are accomplished by means of moving the trolley

backward and forward on the girders. Its vertical movements are effected by the operation of the walking beam. The forward portion of the beam being out of balance, the bucket descends by gravity as soon as the brakes on the hoisting mechanism are released.

Two Men Operate the Unloader Unaided

Only two men are required for the operation of one of these machines. One, whose station is in the leg directly over the bucket shells, controls all the motions of raising and lowering the bucket, of traversing the trolley back and forth, and moving the machine along the dock from one hatch to another. The second operator is stationed in a cab on the larry and from this point controls the movement of the larry, the operation of its gates, and the weighing of the ore.

Some idea of the capacities attained in unloading by this method may be derived from a record which was made in Ashtabula by eight machines of this type, each having 15-ton buckets. These unloaded seven boats with an aggregate capacity of 70,000 tons in twenty-two hours actual time. At other points four machines working in boats having capacities up to 13,000 tons have unloaded these cargoes in about three hours and twenty-five minutes.

In addition to the vertical movement, which is given to the bucket leg by means of the walking beam, it also has a motion of rotation around its vertical axis. This is introduced in order to enable the machine to reach along the keel of the boat and clean up ore between hatches. The distance from point to point of bucket shells when open is approximately 21 ft. About 97 per cent of the ore is removed from the boat without hand labor.

Records of fifty machines in operation indicate that this device will handle ore at 2½ to 4½c. per ton, including all fixed charges, and as much as 783 tons of ore per hour per machine ha sbeen removed between the time the boat was tied up and cast off. The Lehigh ore unloader will be installed at the Claremont Terminals, New York Harbor, to handle Chilean and Cuban ore. A price on pig iron lower than that based on Minnesota ore is predicted because of the economies that the installation will effect.

Bureau of Mines May Classify Coal at Sewalls Point Pool

GOVERNMENT inspection of coal at the Sewalls Point pool may be undertaken as a result of negotiations now in progress between the operators and the Bureau of Mines. Many are of the opinion that coal classification on a scientific basis must be undertaken and that it is a producers' problem. It is pointed out that when iron ore sold for less than coal is selling for at the present time, no sales were made without analysis. It is believed at the Bureau of Mines that the time is passing when coal can be sold on a different basis from other minerals.

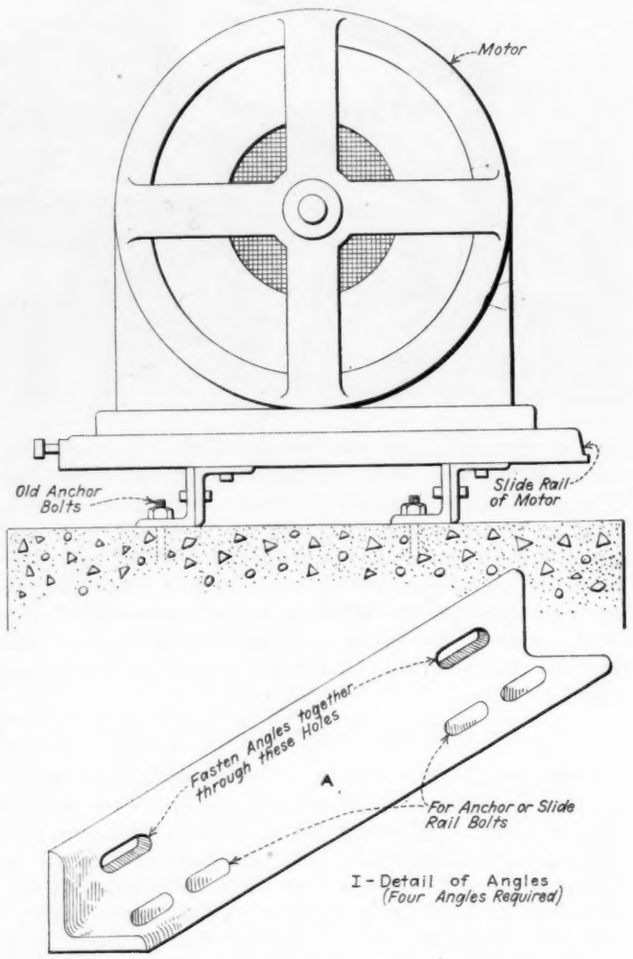
Smokeless Fields Are Filling Contracts

REPORTS from the smokeless fields indicate that car supply is good and that the New England order is working out to the satisfaction of all concerned. At the present rate of production, no difficulties are being experienced in supplying coal called for by the contracts of consumers other than those of New England.

Preparing a Motor Base to Suit Needs of Machines of Various Sizes*

By M. M. Gable
St. Louis, Mo.

OCCASIONALLY, in mounting small motors on concrete foundations, it is desirable to arrange the foundations so that they will accommodate the baseplates of machines of different sizes and do it without the necessity of changing the location of the anchor bolts. The accompanying illustration shows how this arrangement has been accomplished successfully in an industrial plant.


Motor
Old Anchor Bolts
Slide Rail of Motor
Fasten Angles together through these Holes
A
For Anchor or Slide Rail Bolts
I - Detail of Angles (Four Angles Required)

BASE FOR MOTORS OF VARIOUS SIZES

By using angle irons between motor base and motor small motors of various sizes can be supported on concrete bases without making provision that the anchor bolts be located over the holes in the base plate of the motor that may temporarily occupy that particular place.

For each motor four identical angles, each arranged as shown at *A*, are prepared. Two of the angles are bolted to the top of the foundation by means of ordinary anchor bolts. Then to support the motor another pair of angles is bolted to the first pair.

Considerable leeway in motor position is provided by virtue of the slotted holes in the angles. Almost any reasonable adjustment can be obtained. Furthermore, the four-angle combination permits of the ready alignment of the motor with the line shaft or machine pulley which it is to drive.

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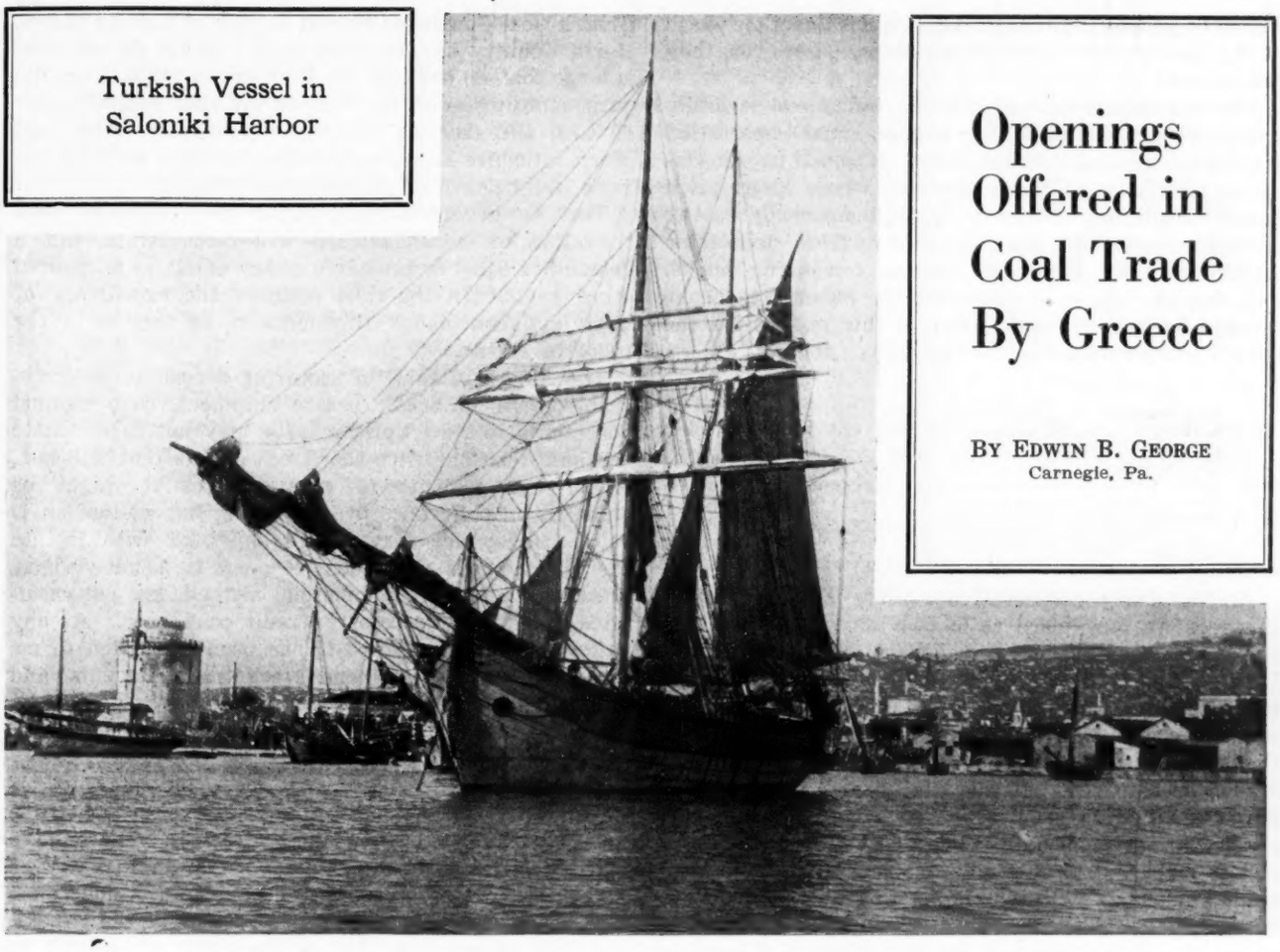
Turkish Vessel in Saloniki Harbor



Openings Offered in Coal Trade By Greece

BY EDWIN B. GEORGE
Carnegie, Pa.

Curtailment of Fuel Supplies from Great Britain Has Made Attic Consumers Willing to Negotiate with Any Collier in Sight—American Commercial Methods Likely To Be a Drawback

GREECE, like every other country dependent upon British supply, has for some time been hovering on the verge of a serious coal shortage. Strikes, shortage of bottoms, industrial unrest—the old familiar symptoms of halting production—have made the Greek coal consumer unusually agitated and ready to negotiate with the first relief collier that can heave to in his harbors. Fearing to depend upon the slender chance of an influx of Miiki coals from Japan, he looks to American coal dealers more or less expectantly. But he knows that demands upon American mines are great, that America can afford to pick and choose her customers. And while Greece owns an immediate, regular demand, there are drawbacks to Levant coal shipments which must sensibly influence any decision reached.

In any general discussion on the Greek commercial outlook allowance must be made for the disordered state of her finances; government restrictions laid on business; her recent acquisition of acreage which will require considerable time to become a homogeneous business body, and the post-war ascendance of politics over business. These facts are common knowledge and are merely painted in as a background to interfering tendencies.

The port of Piræus is situated at one of the most favorable points on the marine highway leading from Gibraltar to Black Sea ports. It is frequented more than any other port in the eastern basin of the Mediterranean. It is the terminus of the Peloponnesus R.R. serving the Morea; for purposes of transportation and consumption it is almost contiguous with Athens, capital of Greater Greece. Athens, in turn, is the terminus of the main line running to Larissa and Saloniki; and through Saloniki of the continental lines branching east and north to Constantinople and Vienna (via Nish) respectively. In both Athens and Piræus there are local manufactures of beer, tile, macaroni and cigarettes. Also in both cities there are fairly extensive electric tramways in active operation. For gas and home use combined a rough estimate would place coal consumption at about 100,000 tons.

There are no neighboring depots. Coal may, however, be obtained at Constantinople, Smyrna and Port Said, which are distant 400, 250 and 700 miles respectively. Moreover, all are equally embarrassed by upheavals in the British coal situation.

Smyrna is a busy, thriving port of call for a large number of steamers, and since its liberation from the Turk is considered a city with a future. But it can comfortably exhaust itself caring for the needs of its own hinterland (New Greece) and the steamers that are beginning to crowd its harbor. There are no native stocks of value in the entire Levant save for some primitively handled mines in the Pontus district on the Black Sea. These mines, according to report, are thick enough in vein to warrant thoughtful study, and

will be considered later in connection with another phase of this report. For immediate purposes, however, they are useless.

The net result to which these influences severally contribute is a comparatively stable annual importation somewhere around 800,000 tons. It must be remembered that the political complex, whose description forms the preface of this report, is temporarily having a depressing effect upon business. This depression distributes itself along the various consuming nuclei, and though not very damaging is enough to make demand fluctuate. Under cover of this reservation the annual consumption may be analyzed as follows:

Use	Net Tons
Ship bunkers	300,000
Railroads	100,000
Factories	150,000
Electricity	50,000
Home use	50,000
Gas	40,000
Miscellaneous	100,000
Total	790,000

An extremely conservative reserve against such a turnover we may place at 50,000 tons. Yet, to illustrate the narrowness of working margin to which British export allocation has reduced them, a generous estimate of stocks on hand in March, 1920, would scarcely exceed 3,000 tons, and that widely scattered. Occasionally some agent or other receives a shipment of 600 or 800 tons, but there is no sign of the heavy flow the situation requires. The permanent bins and yards will accommodate 100,000 tons, but they are almost empty. Yet a single steamer in the American trade bunkering at Piræus is apt to request 1,000 tons, or a precious 33 per cent of stock in hand. Of course she won't get that amount; but the dilemma of keeping ship propellers and the wheels of home industry turning is not amenable to solution through any ordinary process of limiting requisitions. Either British production must climb to the point of permitting full foreign sales or American mines must engage the market.

The grades that do filter through the hands of the British Coal Controller consist largely of Second Welsh, North Country and Durham coals. About 60 per cent is large coal, 40 per cent small or run of mine. Agents' purchasing prices at the time of my visit ranged about £9 c.i.f. Piræus. At this time Admiralty Large and Monmouthshire Large were selling at 100s. f.o.b. on the Tyne, the balance of £4 being for freight.

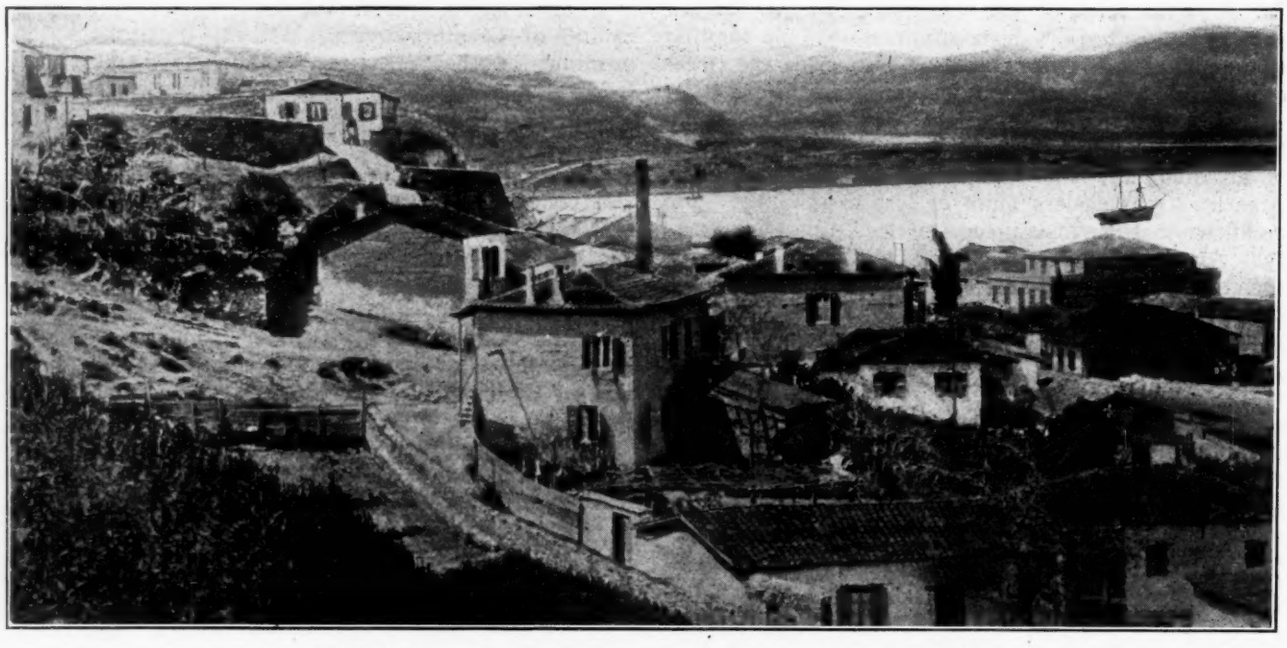
That an urgent demand exists for American coals the situation here sketched will demonstrate, but a demand of equal or greater urgency exists in a hundred other ports. In the final analysis the expediency of large and continuous shipments rocks over onto the issue of terms.

The American habit of requiring deposit of an irrevocable letter of credit before shipment, cash against documents in New York, may or may not consummate business relations with the Greek agents that will last. Under the pressure of circumstances it might be accepted on sufferance by the latter; but as tension is released they are very apt to slip back with it into the old channels of trade. It must be acknowledged, however, that Greek commercial methods are not calculated to invite unnecessary credit confidence. At any rate, the following proposal has been submitted to me by a number of prominent Greek trading agents, and can be reviewed on its own merits:

Commercial Methods of Greek Agents

Upon each shipment of coal costs and one-third of the freight will be paid in advance, cash collectible upon presentation of shipping documents. The balance will be settled upon arrival of steamer in Piræus, the cargo itself being security for payment. Under such a contract, according to the persuasions of the Greeks, the ship cannot lose, for in the event of default at the port of arrival she is possessed of a stable cargo whose value even under forced sale would far exceed the amount of deficit.

Concretely, a steamer is dispatched from Norfolk to Greece laden with 6,000 tons of Pocahontas coal, contracted for at $6 per ton. The freight rate proves to



THE PORT OF PIRÆUS, ALMOST CONTIGUOUS TO ATHENS

This is one of the most favorably located ports between Gibraltar and the Black Sea, and is more frequented than any other in the eastern Mediterranean

be $30 per ton, one-third of which is $10. The amount for which the shipping documents are good in advance at the New York bank, then, is $6 plus $10, or $16, on the ton; this is equivalent to $96,000 on the shipment. Now there is still due the shipper two-thirds of the freight, or $20 on the ton. This balance, $120,000, is to be paid to the credit of the shipper in, let us say, the Bank of Athens upon arrival of the steamer in Piræus. The master has been instructed not to deliver the coal until deposit has been guaranteed and certified by the receiving bank. But, barring an unforeseen drop in the market, there will be no risk on this score. Even with the present high rate of exchange the $20 per ton in abeyance would not arise to a greater value than 180 drachmæ. But at present writing the supply of coals cannot meet the demand at 325 to 335 drachmæ. As long as the stringency obtains there can be no forfeiture. In the imaginary event of a drop and "stand-from-under" policy the shipper is protected by a margin of 145 drachmæ before he is reduced to the line of no profit.

Does Not Recommend Terms Offered

Of course such practices are frequent in foreign trade transactions. The illustration is cited merely as a gage to the strength of this particular market. Nor do I wish it to be construed as a recommendation of terms offered. For the time being they probably are safe enough. But I have enjoyed quite an intimacy in both business and political circles in Greece, and frankly place little faith in any pact they make which is not abundantly secured. Full cash against documents in New York is rather exacting and, as pointed out, may embarrass later relations. F.O.B. price plus at least half-frieghts is nothing more than fair. The Greek dealers claim that all English business is consummated on the cost-plus-one-third schedule.

I should add under this cover that certain of the entanglements by which the Greek government hamstrings its business men are in a sense justification of his cost-plus-one-third-freight proposal. In the first place, to provide credit in New York 25 per cent must be deposited forthwith. A commission charge of 1½ per cent is made by the bank for use of its credit toward this end. Saddled upon this the Government requires a deposit of 10 per cent as guarantee for direct delivery into Greece for home consumption. Prior to the American coal strike two shiploads had been contracted for by Greek parties. The resumption of export licenses during the strike automatically cancelled the contract. Yet, owing to the heavy obligations into which the Greeks had thus been compelled to enter at the very commencement of the deal, the 1½ per cent credit commission and interest on their advances for time employed was forfeit, while the 10 per cent Government deposit is always jeopardized in such cases through official caprices. In the case of the 6,000-ton shipment used as an example cancellation of contract due to shortage or other cause would inflict a direct minimum loss of $3,000 on the consignee and the risk of $10,000 more.

Any exporter who transports coal to a Greek port via a chartered ship or engages space from its operators to the same effect must be very sure to protect himself by inclusion of a strong demurrage clause in the agreement of sale. Methods of discharging are primitive and slow, the coal being transferred to ship or stack or bin by means of hand-baskets and "coolie" troops, the prevalent style from Gibraltar to the Orient. The demurrage clause should guarantee a dispatch of 400 tons every weather working day; Sundays are of course excluded. The weather will usually be found fair. Four hundred tons is only an average dispatch for this port, though under pressure, and for a consideration of £100 per day, I have known the daily rate to be raised to 1,000 tons. Greek agents express themselves as content with a demurrage agreement on the basis of the contract offered by the U. S. Shipping Board.

The Greek market can be reached through both public and private channels. As the government owns the railroads, trams and public utilities, and during the war commandeered a large part of the shipping, it is the heaviest purchaser of all. A portion of its buying it conducts through established private dealers, but it also maintains an agent in New York, Elie Travlos, 21 East 40th St., New York City.

The Main Issue in Building Up Trade

It can readily be seen that the main issue in building up such a trade rests not upon the cost of the coal but upon the cost of shipping it. Judging only by proportions it would appear that where the American is selling coal his customer is buying cargo space and filling it with coal as a casual form of cargo. So the moment the exporter charters a ship on behalf of his customer he *ipso facto* gives birth to an entirely unrelated set of problems. Time and again since the war have richly laden ships plowed their way to the Levant, discharged their cargo, and come back empty or half down to their marks, perhaps, with expensive and slowly loaded ballast—in either case a cumulative loss to their owners or charterers. Therefore every ship that is sent to Piræus with coal is haunted by the maritime spectre of the Levant—no return cargo!

To lack return cargo means that the original freights must cover the expenses of the round trip plus a profit margin, which in turn means a further boost to the c.i.f. price of coal, which means harder competition in the newly adjusted markets. If no freight at all is procurable it means the purchase of ballast at a high cost and miserable loading rate, which further piles up the debit of the shipper. The port of Piræus has available hides and cognac (now manifested for transshipment to Canada); from Smyrna can be obtained dried raisins, figs, cereals, opium, valonia, licorice, olive oil, tobacco, emery, skins and fruits; from Saloniki, skins, tobacco, manganese, opium, chrome ore; Cavella is of course famous for its tobacco; Constanza, Bourgas and Varna ship normally ore and hides; from Alexandria come rice, sugar, cotton, cigarettes, beans, wool and hides.

The list is imposing enough, but every port without a single exception save the original Piræus requires a lengthy and unprofitable diversion of the steamer from its homeward route. Post-war conditions have demoralized the entire area to the practical elimination of an exportable surplus. To group these few and scattered shipments into a respectable cargo is a bewildering problem in mathematics. It is too much like picking up mercury, and shipping profits are not won along such lines. After careful study I have come to believe that there is one avenue of relief open, and that one peculiarly adaptable to the needs of the American. I refer to the purchase of Greek iron ore in place of ballast.

Discussion by Readers

Edited by
James T. Beard

Many Disadvantages in the Contract System

THERE are certain advantages to be derived by mining coal on the contract system, it is true, as pointed out in the letter of "S. W. F.," *Coal Age*, July 22, p. 176; but, aside from these advantages, there are many disadvantages in the practical working out of that system of mining. It is often the best method to adopt, however, in driving narrow work and often gives good results with a certain class of labor, provided the contractor is not given too many places requiring his attention.

The benefits to be derived, in discussion, depends on the candid consideration of the faults as well as the merits of a proposition. In regard to contract mining applied to any portion or section of a mine, it cannot be denied that the foreman of the mine is almost sure to be robbed of his best men, whom he has trained for the purpose of building up his working organization.

Such a result is almost unavoidable because of the generally shorter hours and higher wages offered by the contractor. Moreover, much discontent is frequently arouned among the miners employed by the company owing to differences that arise by reason of the contract labor, which is not subject to the same discipline as the other men working in the mine.

During the period of the war the superintendent of a large mine contracted a considerable portion of his work, in the hope that it would draw into the mine labor from the farms at a time when the crops had all been harvested. The result was that the mine foreman in charge could hardly train men as fast as the contractor would take them from him, and the discipline in the mine was completely broken down.

Loss of Coal in Contract Work

Again, in respect to safety and economy in the extraction of the coal, unless the contractor is held accountable in this regard his desire to mine a large quantity of cheap coal will cause him to rob the pillars, in the first working, to such an extent as to invite a squeeze and cause a large loss of coal that cannot be recovered. Here too, unless the mine foreman is particularly observant and agressive, he is apt to become a mere figurehead in the operation of the mine, and may be helpless to avoid the loss of coal and other troubles under the terms of the contract. Thus it happens that the foreman will often be at cross-purposes with the contractor.

In one instance that I recall where a section of a mine was contracted the heading struck a slight squeeze, which increased the expense of working, and the contractor at once started to rob back the pillars, leaving a large block of coal 500 x 1,500 ft. and varying from 4 to 6 ft. in height. His control of that section of the mine which had been turned over to him to work cut the company off from reaching this block of coal and it was lost for all time.

Another feature that is a disadvantage often met in contract work is the low entries and small airways that are frequently permitted by the contractor. This increases the expense of ventilation, haulage and maintenance of roads, and presents serious difficulty in the future working of the mine.

In the letting of contracts dissatisfaction often arises from giving the best section of the mine to friends or relatives, whereby ill feeling is engendered. Again, there are contractors who make a practice of remaining on top and driving to town, leaving an underboss in charge of the work below ground.

Notwithstanding these disadvantages, however, the contract system properly safeguarded and controlled is the cheapest way to mine coal, and often the only way to successfully work a large body of unskilled mine labor. A large class of miners now employed in our mines requires the leadership and direct supervision that a good contractor is able to give, and the result is a larger output and cheaper coal. JOHN W. JONES.

Altoona, Ala.

Unsafe Conditions Often Permitted in Early Mining Practice

THE question of the correct interpretation of that section of the mining law of Pennsylvania quoted in the inquiry, *Coal Age*, July 15, p. 136, is one that should cause no difference of opinion among practical mining men.

The argument mentioned in this inquiry was as to whether the five rooms turned off the return road of a pair of headings could be worked with open lights and still comply with the law forbidding the use of open lights on the return air from any section of a mine where gas was being generated. In the case in question gas was generated at the faces of the two headings and the five rooms were turned off the return airway.

Where the Law Is Indefinite a Foreman Should Act on the Safe Side

Now, the last clause of the section, which makes the law not applicable to cases "wherein explosive gas is generated only at the face of active entries," is, to say the least, vague and indefinite. But, regardless of this final clause, I am confident that it would not be complying with the law to work these room with open lights. I am equally certain that no mine inspector or operator would countenance using open lights in these rooms when locked safety lamps are required at the faces of the headings.

The case is similar to that often discussed regarding the practice of using both open lights and locked safety lamps in the same mine, which the majority of mining men agree is a dangerous practice. It would seem to me that the final clause of this section has slipped in by oversight, and is a relic of the old law that should be eliminated in the interest of safe mining.

Formerly conditions were often permitted to exist in mines which would now be called unsafe. For example, I recall working in a couple of mines, in the Pittsburgh district, several years ago where it was customary to use both open lights and locked safety lamps, not only in the same mine but on the same pair of entries.

In that particular instance a portion of the rooms on a certain pair of entries were drawing back the pillars, while other rooms inby on the same entries were advancing. A "deadline" was always maintained between the rooms working pillars and those that were advancing. No open lights were permitted to be carried beyond this deadline. The moment the last breakthrough was driven at the face of a room and the work of drawing back the pillars was started the miner was given a locked safety lamp, while the man working the next adjoining room was permitted to use an open light, regardless of the danger.

Most of the daymen and drivers carried both safety lamps and open lights, which they used as the regulations of the mine required. There was a heavy penalty for carrying an open light inside of the deadline, and I never saw or heard of anyone violating the law or any of the rules of that mine while I was working there. It goes without saying that such a condition of affairs would not be permitted today. The same air that swept through the gob section where the safety lamps were used passed on into the rooms which were being worked with open lights. All will agree that the practice was extremely dangerous.

The arrangement of the rooms shown in the sketch accompanying this inquiry (p. 136) is probably only a tentative one, as it is clear that the difficulty could have been obviated readily by carrying the air up through the rooms, making the main road the intake and the back air-course the return. Such an arrangement would have made permissible the use of open lights in the five rooms, while locked safety lamps were required at the face of each heading. My verdict is that under the present arrangement the five rooms could not be worked with open lights and comply with the law. W. H. NOONE.

Thomas, W. Va.

Use of Open Lights on Return Air from Places Generating Gas

ACCORDING to the way I read and understand the section of the Bituminous Mining Law of Pennsylvania (Art. 10, Sec. 3), referred to by "Fireboss," *Coal Age*, July 15, p. 136, who asks for a correct interpretation of its meaning, the section appears to strictly forbid the use of open lights on the return side of any working place or places generating firedamp in such quantities as to require the use of locked safety lamps.

Under no condition would I permit open lights to be used on the return air coming from such places. The fact that locked safety lamps are required to be used where the gas is generating shows that those places are making considerable gas. Of course this gas diffuses into the air current; but, nevertheless, in places working on the return side, if they are at all dusty, there is every chance that an explosive condition of the air will be created by the mingling of the gas and dust. The presence of an open light in such an atmosphere would be almost certain to cause a serious explosion.

It is my belief that the intention of the law is to prevent this condition and avoid disaster. The last sentence of the section, making it not to apply "to any mine wherein explosive gas is generated only at the face of active entries," I believe has reference to such entries as have no rooms turned on the return side or back entry.

For example, where butt headings are turned off the main road on a pair of cross-entries there are generally no rooms turned off the return air-courses. But even with this understanding the last sentence of this section of the law appears to be unnecessary, since the use of open lights on the return air from places generating gas should not be tolerated under any conditions.

Oak Hill, W. Va. WILLIAM DICKINSON, SR.

Legislation Restricting the Use of Open Lights in Mines

THE object of legislation is and should be the protection of life and property. Owing to the varying conditions in coal mining and the need of economizing in every respect in the methods employed in the extraction of the coal, it is often difficult to enact laws that are suitable to the several mining districts of a large state such as Pennsylvania.

A deep interest has been aroused by the question brought forward in the inquiry of a fireboss in the Pittsburgh district, *Coal Age*, July 15, p. 136, asking for an expression of opinion regarding the correct interpretation of Sec. 3, Art. 10 of the bituminous mine law, which reads as follows:

> The use of open lights is strictly prohibited in the return air current of any portion of the mine that is ventilated by the same continuous air current that ventilates any other portion of said mine in which locked safety lamps are used. The provisions of this section shall not apply to any mine wherein explosive gas is generated only at the face of active entries.

In reading this section of the law the attention is naturally arrested by the last sentence, which would seem to annul the provision made in the preceding portion of the section. In this connection I desire to point to a similar reference, which occurs in Sec. 2, Art. 28 of the same law and reads as follows:

> The provision of this act as to mines or portions of a mine generating explosive gas in quantities sufficient to be detected by an approved safety lamp shall not apply to any mine wherein explosive gas is being generated only in live entries.

As stated previously, the framing of a mine law that is alike suitable to the operation of mines under varying conditions with a view to safety and economy is no easy task. It is a matter of not only getting the lawmakers to agree but involves throwing no unnecessary burden on operations not affected by the causes that underlie and make desirable the proposed law.

CONTROVERSY REGARDING THE INFLAMMABILITY OF COAL DUST OF NORTHWEST PENNSYLVANIA

Many will recall the controversy that took place only a few years ago regarding the question of the inflammability of the coal dust in the mines of northwest Pennsylvania. If one wanted to have his hair combed, all he had to do was to suggest to an operator in that district that the dust in his mine was as inflammable as that in another district of the state.

A like difference of opinion exists between the operators of mines located in sections where the gas generated comes only from the coal and bleeds out quickly at the faces of live entries but is not found in the rooms and the gob areas, as compared with mines where the gas comes from the enfolding strata and continues to be generated in all rooms and gob sections of the mine and is an element of danger.

It is easy to see that a law restricting the use of open lights in mines of the latter class would impose an unnecessary burden on mines of the class first named. This explains, in a measure, the insertion of the reference to "active" and "live entries," in the two paragraphs of the law quoted above.

Gas Bleeds Off in the Entries and Is Not Found in the Rooms

Through Jefferson, Clearfield and Indiana counties, in Pennsylvania, it is common to find gas at the face of most of the active entries; but this gas bleeds off quickly as the entries are advanced, and gives no further trouble in driving rooms or in gob sections of the mine. I have seen gas coming from the augur holes at the head of entries, and have been obliged to carry canvas forward from the last breakthrough, in order to keep the face of the entry clear of gas and safe for work.

In those mines we employed firebosses whose sole duties were to see that the brattice in every live entry was kept up in good condition and that sufficient air was traveling to keep the places clear of gas. This was done every day, Sundays and holidays alike, and open lights were used throughout the mine. It is true that some explosions have occurred in the mines mentioned as lying in the northwest section of Pennsylvania. These, however, resulted from the failure of someone to properly care for the gas generated at the face of an active or live entry.

Let me say, in closing, that it is my opinion that open lights could be safely used in the rooms on the return air, in the case mentioned in the inquiry to which I have referred, provided this mine is operated under the conditions that I have named, where the gas comes only from the coal and gives no serious trouble in the driving of the rooms. This is assuming that gas has never been found anywhere except at the faces of the active entries.

Pikeville, Ky. G. E. Daugherty.

Skill vs. Mechanical Equipment in the Mining of Coal

MUCH interest attaches to the question that appears in *Coal Age*, July 1, p. 24, asking "Why should Miners Oppose the Introduction of Mechanical Equipment?" It cannot be denied, that ever since the last contract between the operators and miners came into effect, there has existed an attitude of protest on the part of the miner, which has finally resulted in the present strike and thrown all the mines in the state idle.

In seeking for the actual reason of this condition, one is led to conclude that the comparatively small proportion of mechanically trained men employed in the mines are underpaid. It is my belief that what has aroused this seeming opposition to mechanical equipment has been the circulation of reports that pick and shovel miners are making $200 or more in two-weeks time.

While it is possible for a physically strong and skillful miner to make this record for a few weeks or perhaps months, while working under favorable conditions of good air, where the coal mines readily and there is little dirt and refuse to handle, I have never heard of such a record being kept up for any length of time.

In the field where I am working at present, the mining conditions are rather above the average and we have had several of these super pick-and-shovel miners, who have made such records as I have mentioned. They have only kept this up, however, for a short time. The man would either become physically exhausted or be crippled as a result of disregarding his own safety. In the past four or five months, three men lost their lives in one mine; and others have been crippled by reason of not taking the proper precautions for safety.

Writing on this subject, in the letter to which I have referred, R. T. McKeen asks, "Does the present differential of machine-mined coal justify the capital required to install the necessary machinery?" The question that is of even greater importance, in my mind, is: Why have any differential at all? Why not place machinery in the hands of mechanically trained men and pay them a substantial salary or day wage that will put their skill on a par and make their labor equally remunerative as that of the pick-and-shovel miner?

To the most casual observer, however, it is clear that so long as some stiff-necked carpet walker thinks that 75c per hour is a sufficient wage for skilled labor in the mines, *he* is responsible for the present condition of affairs. It is these inequalities in the wage scale and the proper evaluation of skilled labor that are the real underlying causes of the present difficulties.

Mining Laws Side-Stepped, Others Indefinite

On no account can I agree with the writer in *Coal Age*, July 22, p. 176, who advocates the contract system of mining coal. It is my belief that the large majority of our practical miners will agree that the contract system of mining and piecework have put a premium on sheer brutal strength, and discounted all efforts to insure safety and a strict compliance with the mining laws, which have been side-stepped in nine cases out of ten where this system has been employed. It goes without saying that accidents must result from a disregard of mine laws and mine regulations.

This reminds me of the inquiry of a Pennsylvania fireboss that appeared in *Coal Age*, July 15, p. 136, asking for the correct interpretation of Sec. 3, Art. 10, of the bituminous law of that state. For my part, I fail to see how a man holding the responsible position of fireboss could question for a moment the necessity of using locked safety lamps on the return current coming from a place where gas is generated to an extent that requires the use of safety lamps in those places.

Suppose, for a moment, there is any interruption of the ventilation, or a hidden pocket of gas is struck, and men are working with open lights on the return of that current. Does anyone doubt that another "mysterious" accident would be recorded? In my opinion, any such ruthless offender of the mining law should be prosecuted and receive no benefit through the Compensation Act. The same applies to all miners who take chances at times when they have an extra supply of cars, and disregard safety in their desire to load a big run of coal.

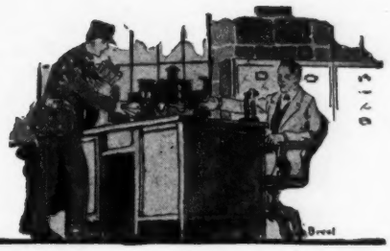
I have one hope for relief from these difficulties, in this country that has fought for democracy; and that is that there will result the downthrow of autocratic power that attempts to control the practical mining of coal while yet unfamiliar with its working conditions and requirements. Let us hope that, in this portion of God's earth blessed with a constitution that guarantees the equal rights of man and the pursuit of happiness, unselfish leaders will arise who will execute the meaning of our constitution to the minute, and that true democracy shall be established in the land.

Staunton, Ill. Henry Bock.

Inquiries of General Interest

Answered by

James T. Beard



Seeks Most Advantageous Methods of Mining Low Coal

HAVING recently taken charge of a mine opened in a seam that will average from 32 to 35 in. in thickness, and being desirious of making good I am taking the liberty of asking *Coal Age* and its readers for any information they can give that would be of assistance to me in the development of this mine and working the coal.

Although I have worked in mines for the past twenty-three years and have served as mine foreman for five years, my experience in the working of low coal is limited, and I do not want to make the mistake of employing methods that are better adapted to the working of seams of greater thickness but would not prove economical in low coal.

The mine is well equipped but has never made the showing it should, probably because the methods employed have not been adapted to the purpose. As shown

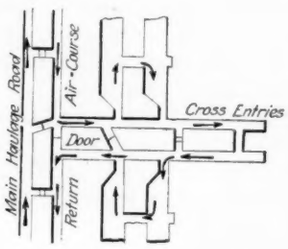


FIG. 1. SHOWING ORIGINAL PLAN AND VENTILATION

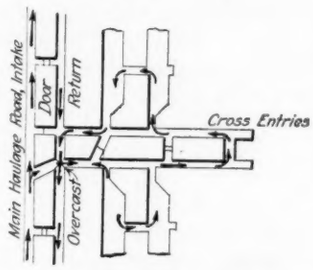


FIG 2. SHOWING PROPOSED PLAN AND CIRCULATION

in the accompanying sketch (Fig. 1), the mine is opened on the double entry, room-and-pillar system, with rooms turned off on both sides of the cross-entries on 60-ft. centers, and having a double roadway.

As shown by the arrows in the sketch the main haulage road is made the intake for the mine, which is ventilated by one continuous current, there being no split at the present stage of the development. The fan is operated on the exhaust principle. I shall greatly appreciate any criticism of this plan and any information in regard to the working of the coal. In order to gain height on the roads I am lifting bottom. L. E. R.

————, Ky.

As this correspondent has assumed, there are many points of difference between the working of low coal and seams of greater thickness. While it is hardly possible to give an intelligent answer regarding the details of working the seam in question without an accurate knowledge of the conditions relating to the character of the coal and the adjacent strata, the depth of cover, inclination of the seam, form of opening and the extent of property, it is possible to offer a few suggestions that will in a general way assist in the economical and safe extraction of the coal.

In the first place the chief condition favoring the economical mining of a thin seam of coal is the employment of the longwall method of extraction. The advantage of this method consists in the more complete extraction of the coal at a less cost for maintenance of roadways, ventilation of the mine and timber supply; and greater safety for the men working at the face is insured, provided they understand longwall work.

Complete extraction and economy of operation are important factors in the working of low coal. However, the success of longwall work depends so largely on the conditions existing in the strata and the knowledge and skill of the men employed in mining the coal that it is not always feasible to consider its adoption.

Suggestions of Possible Improvements

In reference to the room-and-pillar system shown in Fig. 1, a few slight changes could be made that would improve the arrangement by affording a more direct line for hauling the coal from the cross-entries to the main haulage road. Such a plan is shown in Fig. 2.

It is further suggested that as the development of the cross-entries progresses sufficiently to warrant the expense of building an overcast, this should be done, because it will give better ventilation at the working face and reduce the cost of ventilation. Also, another pair of cross-entries should be driven to the left of the main heading provided the property and coal extends in that direction.

In providing for a large development, especially if the mine is generating any gas, it would be well to drive the main headings three or even four abreast in order to furnish separate return air-courses and ample facilities for the haulage of the coal, on both sides of the mine.

When to Lift Bottom or Brush the Roof

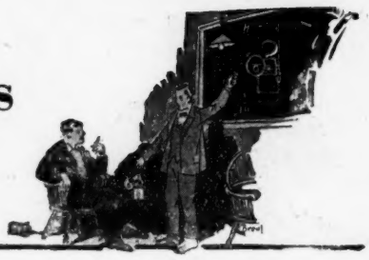
The question of lifting bottom or brushing the roof, in order to attain the required headroom on the haulage roads can only be decided after a careful study for the purpose of gaining a thorough knowledge of the nature of both the roof and the bottom of the seam. Where the coal is underlaid with a considerable thickness of fireclay, especially if the mine is making much water and the seam lies at a considerable depth below the surface, it may prove a great advantage to take down two or three feet of the roof slate. Of course, if the coal is overlaid with a hard rock this will be impracticable and bottom must be lifted to secure the required headroom.

In order to avoid unnecessary deadwork in the rooms the mine cars should be made low and broad so that they can be taken to the face of the rooms without having to life bottom or brush the roof in the rooms. Other suggestions could be made that would be helpful if one had a more accurate knowledge regarding the conditions to be met. Probably many *Coal Age* readers will be glad to give us the benefit of their own experience in the working of low coal.

Examination Questions

Answered by

James T. Beard



Foremen's and Asst. Foremen's Examinations
Centralia, Pa., May 6, 7, 1920

(*Selected Questions*)

Ques.—When the fireboss reports, in the record book, certain dangers that he has discovered during his examination, what is then your duty as mine foreman?

Ans.—The Anthracite Mine Law of Pennsylvania requires the mine foreman or his assistant to remove all dangers found to exist in the mine. It is the duty of the mine foreman to examine closely the report made by the fireboss and entered in the book kept for that purpose, and attend to the prompt removal of whatever dangers are noted therein. He must see that the men who work in such places are prevented from proceeding into the mine until the said dangers have been removed and the places reported safe for work.

Ques.—Explain the proper method of thawing dynamite cartridges.

Ans.—Dynamite cartridges, when frozen, must be thawed by the indirect application of heat. That is to say, a frozen cartridge must not be exposed directly to a lamp flame or other intense source of heat. It must not be brought in contact with a heated steam pipe or other hot surface. The safest method of thawing frozen dynamite is to pack the cartridges in fresh manure, or otherwise subject it to a gentle heat until it is thawed.

Dynamite cartridges can be safely thawed by laying them on shelves sprinkled with sawdust, in a small room or chamber where a moderate temperature is maintained by steam pipes. A temperature of 75 or 80 deg. is sufficient for this purpose. A good method of thawing dynamite on a small scale is to place the cartridges in a small kettle that is partially immersed in another kettle containing hot water. Whatever method is employed every precaution must be exercised to insure safety.

Ques.—State fully how, when and where should a mine foreman measure the air. When and how should he make reports of air measurements to the mine inspector,

Ans.—The anthracite mine law requires the mine foreman or his assistant to measure, once each week, the air passing at the inlet and outlet airways; also, at or near the face of each gangway and at the nearest cross-heading to the face of the inside and outside chamber or breast where men are employed, and to enter such measurements in the colliery report book.

The law requires that a report of these air measurements be sent to the inspector before the twelfth day of each month, for the preceding month, together with a statement of the number of persons employed in each district. These reports must be made on blanks prepared for that purpose.

Ques.—How would you release an injured person from contact with the conductor of an electric current when the current is still acting on him?

Ans.—If a switch is near at hand shut off the current at once; or cut the wire between the powerhouse and the victim, using a sharp axe if available, but taking the precaution to handle the axe with a wrapping of dry paper or a dry garment. No axe being available at the moment, it may be possible to short-circuit a portion of the current by dropping a bar or drill across the wire on the power side of the victim. In any case, no delay must be permitted; but an immediate effort made to drag or push the person from the wire, using the precaution to avoid standing in a wet place or taking a hold of wet clothing on the person. The attempt must be quickly made if the person is to be rescued from his perilous position. If possible, stand on dry clothing or dry paper and avoid any contact with the rail or other iron when performing the act.

Ques.—How many cu.yd. of rock were removed from a shaft 10 ft. 6 in. by 8 ft. 9 in., in section, and 241.25 ft. deep? What did this work cost at 15c. per ft.?

Ans.—The sectional area of this shaft is $10.5 \times 8.75 = 91.875$ sq.ft. There being 27 cu.ft. in a cu.yd. the quantity of rock excavated for a depth of 241.25 ft. is $(91.875 \times 241.25) \div 27 = 821$ cu.yd., nearly.

The price named (15c. per ft.) can hardly be taken as meaning per ft. of depth. The question should probably read, 15c. per cu.ft., which would be $27 \times 0.15 = \$4.05$ per cu.yd. The cost of the work, at this rate, would be $821 \times 4.05 = \$3,325.05$.

Ques.—Is it safe to pass a current of intake air through the abandoned portion of a mine and then conduct it to the face of the working; if not, why?

Ans.—Emphatically, no! An air current used to ventilate an abandoned portion of a mine should be conducted at once into the main return airway leading to the upcast shaft or the discharge opening. The reason is that abandoned workings almost invariably generate considerable quantities of poisonous or noxious gases that are injurious to health. The blackdamp commonly found in such abandoned places is not only injurious to health, but would dim the lamps of the men working at the face and lower the efficiency of their efforts.

Ques.—How much air, per man, does the Pennsylvania law require; and what is the highest velocity of the current permitted by the same law, in gaseous mines, and why?

Ans.—The anthracite law of Pennsylvania requires the circulation of 200 cu.ft. of air, per minute, per man, "and as much more as the circumstances may require." The law further specifies that "in no case in mines generating explosive gases shall the velocity exceed 450 lineal feet per minute, in any opening through which the air currents pass, if gauze safety lamps are used, except in the main inlet or outlet airways." The purpose of this provision of the law is to avoid the risk of the flame of the safety lamp being blown through the gauze and igniting the gas outside the lamp, which might cause a serious explosion.

The Labor Situation

Edited by
R. Dawson Hall

Spadra Mine Strike Comes to an End

MORE than 1,100 coal miners were still on strike in the Fort Smith district at the end of July, the Spadra group having failed to go to work. On Aug. 2, however, the Spadra strike came to an end after three weeks of idleness.

Broad Top Miners' Strike Still Continues

AUGUST opened with the Broad Top strike of central Pennsylvania, which started July 9, still in full swing. The men are determined to secure the dime bonus which was given them during the war and which they feel the Bituminous Wage Commission intended to continue to them. No signs of weakening are visible.

Kentucky Strike for Eight Dollars a Day

SOUTHLAND Shaft No. 2 is located near Henderson, western Kentucky, which is not far from Evansville, Ind. It is not strange therefore that at this mine some of the ideas current in Indiana and Illinois are prevalent. On Aug. 1 the day workers went on strike cutting the output 500 tons daily. They demanded a dollar an hour. The company gave them till Aug. 5 to return or be replaced by other men.

Boy Must Work at Only One Job at a Time

CHARGES that the union is in the business of creating jobs and destroying efficiency are well substantiated by the strike at the Glen Lyon mine of the Susquehanna Collieries Co., July 29, when 500 men went on strike because the company had called on a boy to look after a sand runner and a boiler 500 ft. apart. After a day's idleness the company and mine workers came to an understanding. The boy was to watch the sand runner and another attendant was to take care of the boiler. With this the strike ended and the men went back to work July 30.

Maryland Has Many Small Strikes

SMALL strikes in the Georges Creek field of Maryland are straws pointing to a general unrest in that region. On July 27 William Downtown, a motorman, charged with burning out his locomotive by failing to lubricate it, was discharged for neglect by Superintendent W. H. R. Thomas. A strike followed at Union No. 2 and the Frostburg Big Vein mines operated by Annan and Jeffries, near Frostburg.

About three hundred men are involved, the strike being called by President William Watkins of the Allegany local. When Francis Drum, the district president, suggested that the matter be left to the umpire, Dr. Hollender, of Baltimore, the men refused, saying that three or four weeks would be lost and the discharged man would lose his time meanwhile.

The strike at Shallmar of the employees of the Wolf Den Coal Co. has been settled, the coal company agreeing to pay the mine workers the full amount of the board's award, namely 27c. The men first began to leave this mine in April, when the company refused to pay any more than 14.7c. instead of the 27c. expected. The men remained out until June, when it was agreed that an arbitration board should be appointed, the mine workers to name two members, the company two, and one member to be selected by the four. The men named their representatives, but the coal company did not. Another strike followed and the men remained out until July 28, when the company agreed to pay the full 27c. awarded. Dr. Hollender, the umpire, has awarded the miners of the Emmons Coal Co., at Bayard, the full 27c. claimed by them. They had struck, but pending a settlement by the umpire they agreed to go to work.

Finds That Only the Payment of Sheriff's Deputies by Operators Is Indefensible

AS THE outcome of an investigation into mining conditions in the Guyan coal field, which arose out of the threatened invasion of that field by mine workers from the Cabin Creek district, acting Adjutant General Thomas G. Davis reported on July 26 to Govenor John T. Cornwell that living conditions in the Guyan field compare favorably with those in other fields, that men are not kept at the mines by force or intimidation, that it is not true that a large majority of the men who desire to join the union are prevented from doing so. He found, on the other hand, that the coal operators of the Logan field are opposed to the unionization of their mines and will use any legal means in their power to prevent it, and that while the Guyan operators do not employ guards, they pay through the coal operators' association each month a sum of money which is used by the sheriff to pay certain of his deputies. This practice is condemned in the report on the ground that no civil officer should receive money or remuneration of any sort from any sources other than the state or county which employs him. The investigator finds that investigation does not sustain the wholesale indictment of conditions in the Logan field, which indictment was based on the way these guards were said to have maltreated mine workers and others.

Kanawha Drivers Would Follow Illinois

DURING the Illinois strike trouble developed at the Putney mine of the Campbell's Creek Coal Co. because of the wages paid to drivers, seven men of this classification at the mine mentioned going on strike when their demand for an increase in wages from the scale rate of $5.45 a day to $7 a day was refused. The strike of the drivers lasted only until the return to work of the Illinois mine workers.

The trouble at Putney caused a feeling of uneasiness at the headquarters of district 17, especially in view of the trouble which had developed in Illinois. However, no similar trouble was reported at any other point in district 17. The Putney drivers, it appears, were not satisfied with the flat increase of $1 a day granted by the coal commission. It was stated during the week that President Keeney of district 17 was urging the striking drivers to return to work, adding that if they had any wage grievances they should take them up through the officers of the organization.

Keeney said to the Putney workers : "I am satisfied that the Kanawha coal operators are willing to meet any condition as it may be met by the operators of the Central Competitive states, therefore nothing but harm can come by men taking individual action in shutting down the mines. Any change in contract prices must be brought about by mutual arrangement through joint conferences."

Strike in Alabama Indorsed by Officers of International Union

BRINGING with him the promise of both the moral and financial support of the International Executive Board of the United Mine Workers of America, W. L. Harrison, the international organizer of the union in district No. 20 (Alabama), has just returned from Indianapolis, Ind., the international headquarters. On Aug. 5 the committee on organization of the board, including W. D. Van Horn, of Indiana; A. R. Watkin, of Ohio, and John W. Zimmerman, of Illinois, met in the Birmingham district to size up matters and decide either for settlement or an extension of the strike.

Mr. Harrison's word was most encouraging to the somewhat wearied strikers. He assured them that the higher-ups in Indianapolis were pleased with what had been done in Alabama, indorsed the actions of the local officials and proposed to center all their efforts on work in Alabama and West Virginia, the two weak spots in the chain of unionism.

Perhaps all is not as bright as the reports would seem and the settlement, or surrender, may not be so remote as from the roseate accounts of W L. Harrison might appear. The persons now in the field have the power to end the strike on such terms as may be obtained and it is not impossible that they will decide to do so. However, on Sunday, Aug. 1, J. R. Kennamer, the president of the district, held several meetings, Franklin, Jones, Harris, Prentiss, Hargrove and Ellis being among the spokesmen.

Meantime Frank S. White, Jr., attorney for the union, is busy investigating suits for possession of the mine houses. The companies are busily endeavoring to evict those who will not work, and in most instances the cases are being carried to the circuit court. Altogether nearly a thousand cases probably will be filed during this present week. Mr. White was at Coleanor on Saturday, July 31, defending a number of attachment suits instituted by the company. Monday saw him at Piper.

However, resumption might well be more brisk than it is. At Kimberly the mine resumed work with eleven men. On Friday, July 30, there were fourteen only, so slight had been the accretion. Carbon Hill, which closed down Thursday, July 29, on account of the shooting of Deputy Barrett and Oliver McDade, a non-union miner, has again resumed operation. Will Hicks, the striking miner who began the shooting, died from his wounds.

Coleanor, in the Cahaba field, has only twelve men at work; the Disney Coal Co. and the Big Warrior Coal Co., at Cordova, have each a daily output of thirty tons to their credit. The Marvel mines have an increasing output. Dogwood has thirty men at work. In fact there is improvement everywhere, the output having increased 525 tons daily since the attempt to restart the mines was made. Men at mines that are not striking are redoubling their efforts to put out coal, and more railroad cars are being furnished. J. L. Clemo, secretary-treasurer of the union and its purchasing agent, declares that some of the men who are on strike have not as yet asked for supplies of food.

Views of Opposing Parties on Mine Guards And Detectives in West Virginia

THAT there are not now and have not been mine guards in Mingo County in the sense charged by the United Mine Workers, is the statement of Harry Olmstead, chairman of the Coal Operators' Association of the Williamson field, in the following statement also outlining other conditions in the field:

"The United Mine Workers want to organize this field, and then move on to the larger and more important fields of McDowell, Wyoming and Mercer counties and to round up what mines have not been already organized in Raleigh County. These are the last important unorganized bituminous coal fields in the country, and with these organized the union will control the bituminous production of the United States.

"They will then be in position to enforce the demands formulated at the Cleveland convention last year, which they could not enforce in the general coal strike last year because our mines in this part of the state were operating and our men stuck to their posts. We saved the country from suffering then because this field was not organized.

"The Kanawha scale which the union demands is less than the scale we are now paying and I don't know that the question of treatment or working conditions has entered into the controversy. It is just a question of the United Mine Workers unionizing the mines, with all that such a course carries. We object to that, because for a matter of twenty years we have enjoyed peace and quiet here in this field, and I may say that because of this we have made the success of this field possible.

Men from Union Mines Left as Union Came

"All differences have been settled by operators and miners, and settled satisfactorily. I know of some men who have come in here from union fields, but they left just as soon as the union organizers came in last spring. I don't believe there is any basic union sentiment in the field, because the men have always made good money.

"The mines are among the best in the state. We have no gas and consequently no explosions and the living conditions in the valley are good. The Baldwin-Felts detectives, about whom one hears so much, are not employed to guard property and in no sense are they mine guards. In fact there is not a mine guard in Mingo County. Those men are employed by the companies as any corporation which does not have its own intelligence department employs such men."

The charge with reference to mine guards had been made by C. F. Keeney, president of district 17, in the following statement:

"There are approximately 55,000 organized miners in West Virginia and 35,000 who have not yet been organized. These unorganized men are mostly in the counties of Mingo, McDowell, Logan, Raleigh, Mercer and Wayne, all in the southern part of the state. The campaign to organize these miners is well under way and we expect to have it completed before the snow flies.

"The men and the operators could get together and settle this thing if it were not for the mine guards. They are depriving the men of their constitutional rights and that brings about trouble. Why I understand the sheriff of Pike County has deputized some three hundred men and the coal companies are paying them, while detectives are on the border between Mingo and McDowell counties with rifles and machine guns.

"What would happen if an attempt were made to operate the mines here with non-union men? I wouldn't like to say. But in their present temper these men are not to be fooled with. Right now this situation is a powder mill. The men have no complaint when the law is enforced by the proper authorities. But they will oppose to the last the use of private armies enlisted by the coal companies."

Fight Against Subcontracting Still On

NO PROGRESS has been made in ending the strike of the men of the Pennsylvania Coal Co. against the subcontracting system in force in the mines of that corporation. About seven thousand men are idle in violation of the contract. It is an impressive exhibit to the Anthracite Coal Commission and must serve to convince that body that a contract does not have any binding force and that the union while abundantly able to call a strike is not so clearly able to end one.

The union is trying to have the subcontracting system ended by the Anthracite Wage Commission, but the Pennsylvania Coal Co.'s men cannot wait for arbitration; besides they argue that a strike sometimes convinces commissions that if something cannot be proved to be just it may be clearly indicated as being so highly opportune that it must be made a part of the award.

The clergy around Wilkes-Barre thought that the company would grant a cessation of subcontracting until such time as the commission rendered its decision. They wrote the following agreement for the company to sign, but General Manager W. P. Jennings on July 26 refused to put his name to it:

"We, the officers of the Pennsylvania Coal Co. for the sake of peace and to avoid trouble, do hereby agree to abolish the contract system provided the men return to work at once, with no discrimination being shown against any man, and that on their part the men show no discrimination against any official or employee of the Pennsylvania Coal Co. and that our future actions in the contract system will be governed by the decision of the Anthracite Commission or the Anthracite Conciliation Board."

Not only the clergy but the press and even the Department of Justice have been trying to settle the controversy, the third party entering into the matter because the cessation of production is believed to be in violation of the Lever Act. Assistant U. S. Attorney John M. McCourt, A. R. Ramsdell, chief of the bureau in the district, and several other agents have had conferences with Alex. Campbell and Rinaldo Capalino, two leaders of the striking men. Their aim is said to be get the men to work until the commission adjudicates the matter.

The *Scranton Times* has pointed out that while 8,000 only, as they figure it out, out of 152,000 men are on strike, and while it is unlikely that the action of such a proportion will cause the commission to refuse to make its award retroactive, yet the strike is likely to affect the commission unfavorably when it comes to make its important decisions. Dr. W. O. Thompson, chairman of the Anthracite Commission, on July 29 reiterated his statement that if the mine workers do not return to work they may lose the retroactive provision and get a wage readjustment which will date only from the promulgation of the commission's decision.

The union apparently is honestly against the strike. At a mass meeting which District President John T. Dempsey attended at Dunmore on July 22, two locals, Nos. 879 and 1,670, declared against the action of the Pennsylvania men. However, the union stands firmly by its disapproval of the contract system. At a meeting attended by the strikers, representatives of the company, the clergy and representatives of the Department of Justice, Joseph Yannis exhibited a stack of papers which he declared were sworn affidavits from young men of Pittston alleging that their names had been placed on the payrolls of the company by contractors and that they drew pay for work never performed. Yannis added that the young men got $2 to $4 for presenting themselves at the pay office while the contractors received the balance of the money. It is said that months prior to the strike these affidavits had been collected and that City Detective Samuel Lucchino had done much toward that end prior to being shot down just outside his home.

Miners' Strike in Great Britain Forecast

BELIEVING the British Government will not accede to the demands of the coal miners for another increase in wages and for a reduction in the price of coal to householders, the Liverpool *Journal of Commerce* predicts a strike, possibly within a month. The statement as published under date of July 23 is as follows:

The miners' leaders have officially put forward their demands for a wage advance of 2s. per day for adults, and for a reduction of 14s. 2d. per ton in the price of household coal. The president of the Board of Trade and the Controller of Coal Mines are to meet the executive committee of the Miners' Federation on Monday next, and will give the Government's reply to these demands.

So far as the wage advance is concerned, the government cannot very well agree to give it, as only a few weeks ago they refused one for the engineers. The Government may, however, agree to make a reduction in prices of household and domestic coal, although in many well-informed quarters in colliery commercial circles it is thought the Government will make a definite refusal to both the demand for a further wage advance and reduction in the price of coal. It is said that the miners' executive committee also expects a refusal to their demands. This would bring us to a final issue and result in a ballot of the workers being taken on the question. The result of this ballot will no doubt give the necessary majority in favor of a strike.

It is expected the miners' executive committee will hold another meeting before taking the ballot, but it is understood arrangements can be made very quickly, and the result will be known within a month. The recently increased cost of living, together with the higher rents that will operate shortly, plus extra rates and higher railway fares, are factors that will help the miners' executive committee to secure a large majority in favor of a strike, and as things are at the moment such an event looks as though it were inevitable.

Canadian Situation Affected by Decline in Lake Shipments

Imports of Bituminous During First Half of 1920 Fall Behind Those for Three Preceding Years—Anthracite Receipts Normal

CANADA'S annual consumption of coal has varied in recent years between 24,000,000 net tons (1915) and 35,750,000 tons (1918). As the domestic production has reached the 15,000,000-ton mark only once, Canada is forced to rely upon imports for more than half of her supply. Virtually all of the coal imported comes from the United States, and the great bulk of it is Pennsylvania anthracite or bituminous coal from the Northern and Middle Appalachian regions. The eastern and western extremities of the Dominion are self-supporting in the matter of fuel supply and even export a million and a half tons to the United States, but the central provinces are almost wholly dependent on vessel shipments from American Lake ports and on rail imports via Buffalo and Detroit, or by car ferry across the lower Lakes.

It will be seen from the following table, which summarizes imports of coal into Canada from the United States, that although shipments of anthracite have been going forward this season at the usual rate, the movement of bituminous coal has fallen far behind the four years preceding. The total receipts of bituminous coal during the first half of the year 1920 were 4,595,000 net tons. This was a decrease of 1,798,000 and 3,144,000 tons when compared with 1919 and 1918, respectively, and 1,108,000 tons below the year 1919.

IMPORTS OF ANTHRACITE AND BITUMINOUS COAL INTO CANADA DURING THE FIRST SIX MONTHS OF 1920, WITH COMPARATIVE FIGURES FOR 1914–1919 (*a*)
(Net Tons)

Year	Anthracite	Bituminous
1914	2,041,000	4,870,000
1915	1,914,000	3,309,000
1916	2,097,000	5,848,000
1917	2,232,000	6,393,000
1918	2,180,000	7,739,000
1919	2,022,000	5,703,000
1920	2,168,000	4,595,000

(*a*) For several reasons the statistics of imports from the United States kept by the Canadian Government and the American statistics of exports to Canada do not agree exactly, the amounts recorded by the Canadian Government usually being a little smaller. The Canadian figures are here used, as they represent the rate at which coal is being received for consumption in Canada.

The Canadian movement, like that to the American Northwest, has suffered from the decline in Lake shipments which has marked the present year, although the proportion of the total Lake tonnage which has moved to Canadian destinations is greater than in either 1918 or 1919.

MONTHLY IMPORTS OF BITUMINOUS COAL INTO CANADA
(Net Tons)

Month	1917	1918	1919	1920
January	1,032,000	1,134,000	1,458,000	530,000
February	761,000	1,460,000	1,065,000	570,000
March	1,115,000	1,175,000	923,000	993,000
April	1,331,000	986,000	563,000	711,000
May	893,000	1,542,000	960,000	695,000
June	1,261,000	1,442,000	734,000	1,096,000
Totals	6,393,000	7,739,000	5,703,000	4,595,000

The only Canadian field so situated as to participate in the heavy movement for export to Europe which has developed in recent months is Nova Scotia. The record for the first quarter of 1920 shows a marked increase in exports to France and the Netherlands at the expense of decreased movement to the United Kingdom and to Newfoundland.

EXPORTS OF COAL FROM NOVA SCOTIA DURING THE FIRST THREE MONTHS OF 1919 AND 1920
(Net Tons)

Destination	1919 First Quarter	1920 First Quarter
Newfoundland	132,467	48,412
United Kingdom	115,558	76,788
France	3,835	31,356
Netherlands	.....	73,057

The production of Nova Scotia during the same period was 1,553,834 tons in 1920 as against 1,448,588 in 1919, an increase of 105,246 tons.

On July 23 a measure of export control was announced by the Canadian Government, effective Aug. 1, which prohibits the exportation of coal from the Atlantic, St. Lawrence River and Lake ports of Canada to destinations other than the United States and Newfoundland, except under permit.

Canada is watching for results from the Interstate Commerce Commission's embargo orders. The Dominion has experienced an acute shortage over the entire coal season and unless definite action is taken a coal famine in Canada this winter is predicted. Canadian officials in Washington believe that Order No. 11 will tend to help bring the supplies up to their quota. The importation figures just issued by the Dominion Bureau of Statistics run through June and indicate that Canada is receiving less than 60 per cent of her quota.

IMPORTS OF ANTHRACITE AND BITUMINOUS COAL INTO CANADA JANUARY TO JUNE, 1920

Months	Anthracite (Gross Tons)	Bituminous (Net Tons)
January	320,911	529,782
February	263,305	570,266
March	393,051	992,593
April	234,889	711,221
May	302,071	695,040
June	421,479	1,095,509
Totals	1,935,706	4,594,411

The figures for bituminous coal in this table are later and more detailed than those for the same period in the second table in this article.

Requirements for the coal year ending March 31 next have been estimated by Canadian officials at 15,000,000 tons, in addition to that already received. These requirements are prorated as follows: July, 2,000,000 tons; August, September and October, 2,300,000 tons each; November and December, 1,300,000 each; January, 1,000,000 tons; February and March, 800,000 tons each. Under existing conditions this would give a total of about 7,000,000 tons to be sent to Canada by the Lake route and about 8,000,000 tons by rail. In calculating this budget for the year Canadian officials have used as a base actual shipments for the years of 1919 and 1920 and made allowance for depletion of stocks incident to the strike last November and the fact that these stocks have not been replenished on account of adverse transportation conditions.

Canadian consumers have a strong feeling that since American producers invaded and captured their coal market it is now squarely up to them to supply legitimate needs, especially where coal has been contracted for. They are not, however, overlooking their own resources, and a very determined effort, with strong Government and press support, is now in process to have Canada supply, in so far as possible, her own coal requirements.

Coal Stocks Reported in the Hands of Retailers

Canvass of the Geological Survey Embraces Returns from 1,367 Dealers Throughout the Country—Average Slump of Three Days in Supply Shown Between Feb. 29 and June 1

IN THE canvass of stocks of coal held by representative consumers recently conducted by the Geological Survey with the assistance of funds provided by the Bituminous Coal Commission reports were received from 1,367 retail dealers well distributed over the country. Their replies are given in the following tables.

Stocks of bituminous coal held by these dealers on Feb. 29, 1920, were sufficient to last on the average one week and six days, at the rate of delivery to consumers which prevailed during the three months, March, April, and May. At the end of the period stocks had declined to an average of one week and three days' supply.

Retailers' stocks of anthracite in the twenty-three states where Pennsylvania anthracite is used in significant amounts are shown in Tables II and III. The 975 dealers reporting from these states had in storage on Feb. 29, 1920, 881,856 short tons of anthracite. Three months later, on June 1, they had 513,482 tons, a decrease of 267,374 tons, or 30 per cent. Precisely what part of the total retail business in anthracite is represented by these dealers is not known; that the proportion is large enough to be generally representative is indicated by the fact that they handled about 30 per cent of the total retail business in bituminous coal.

At the rate deliveries of anthracite were made during the months of March, April, and May, 1920, the stocks at the beginning of the period averaged two weeks and four days' supply, and at the end of the period one week and five days.

In the second of the following tables comparison is

TABLE I. STOCKS OF BITUMINOUS IN THE HANDS OF REPRESENTATIVE DEALERS, FEB. 29 AND MAY 31, 1920, IN NET TONS

State	Number of Dealers Reporting	Weekly Deliveries March to May, 1920 (a)	Tons on Hand Feb. 29	Tons on Hand May 31	Weeks' Supply on Hand (b) Feb. 29	Weeks' Supply on Hand (b) May 31
Maine	12	3,075	10,781	6,575	3–4	2–1
New Hampshire	14	1,096	1,237	2,968	1–1	0–5
Vermont	8	836	702	647	0–6	0–5
Massachusetts	61	39,083	72,949	48,294	1–6	1–2
Connecticut	27	6,598	15,215	7,224	2–2	1–1
Rhode Island	13	20,072	22,749	22,035	1–1	1–1
New York	43	19,605	16,200	12,144	0–6	0–4
New Jersey	26	1,504	5,291	1,905	3–4	1–2
Pennsylvania	59	11,101	20,951	5,528	1–6	0–3
Maryland	19	4,975	3,739	3,578	0–5	0–5
Delaware	8	1,991	1,026	560	4–7	2–7
Dist. of Columbia	10	2,860	3,403	2,242	1–1	0–5
West Virginia	19	927	4,061	1,050	4–3	1–1
Ohio	76	39,314	53,795	56,866	1–3	1–3
Indiana	148	22,850	50,270	29,432	2–1	1–2
Illinois	92	58,695	115,445	53,908	2–0	0–6
Michigan	85	21,759	45,999	20,322	2–1	1–0
Wisconsin	52	14,722	61,601	36,845	4–1	2–4
Minnesota	11	13,203	40,904	25,611	3–1	1–6
Iowa	121	16,397	32,382	21,452	1–6	1–2
North Dakota	9	935	3,116	978	3–2	1–0
South Dakota	10	1,182	1,807	897	1–4	0–5
Nebraska	9	3,745	15,544	12,524	4–1	3–2
Virginia	22	6,497	7,460	11,089	1–1	1–6
North Carolina	17	5,032	5,598	7,035	1–1	1–3
South Carolina	21	3,048	2,542	5,501	0–6	1–6
Georgia	27	6,389	8,812	15,165	1–3	2–3
Florida	3	506	643	659	1–2	1–2
Kentucky	60	15,247	22,548	20,628	1–3	1–2
Tennessee	41	12,080	22,023	33,396	1–6	2–5
Alabama	39	3,189	12,741	16,812	4–0	5–2
Mississippi	20	1,959	1,774	6,276	0–6	3–1
Missouri	53	31,090	30,401	20,020	1–0	0–5
Kansas	7	982	7,730	1,433	7–5	1–3
Oklahoma	7	496	979	1,513	2–0	3–0
Arkansas	8	905	534	577	0–4	0–4
Louisiana	7	6,169	12,455	6,170	2–0	1–0
Texas	10	2,331	2,423	4,763	1–0	2–0
Colorado	10	4,214	11,498	9,178	2–5	2–1
New Mexico	9	1,107	1,866	2,381	1–5	2–1
Arizona	7	521	691	998	1–2	1–6
Utah	9	5,358	6,413	10,290	1–1	1–6
Nevada	9	238	417	421	1–5	1–5
Wyoming	8	844	265	168	0–2	0–1
Montana	8	1,639	4,577	3,440	2–6	2–1
Idaho	7	709	2,685	2,120	3–6	3–0
Washington	8	1,895	7,982	9,320	4–1	4–6
Oregon	8	1,527	5,586	5,074	3–5	3–2
California	10	1,243	3,825	3,165	3–0	2–4
Grand totals	1,367	421,745	783,625	571,177	1–6	1–3

(a) Includes shrinkage and yard losses.
(b) Calculated at average rate of delivery during March, April and May, 1920.

TABLE II. STOCKS OF ANTHRACITE IN THE HANDS OF REPRESENTATIVE DEALERS, FEB. 29 AND MAY 31, 1920, IN NET TONS

State	Number of Dealers Reporting	Weekly Deliveries March to May 1920 (a)	Tons on Hand Feb. 29	Tons on Hand May 31	Weeks' Supply on Hand (b) Feb. 29	Weeks' Supply on Hand (b) May 31
Maine	12	1,896	7,235	10,267	3–6	5–3
New Hampshire	14	2,623	7,269	9,476	2–5	3–4
Vermont	8	1,808	2,933	7,467	1–4	4–1
Massachusetts	61	48,697	202,591	140,769	4–1	2–6
Connecticut	27	10,808	59,066	18,541	5–3	1–5
Rhode Island	13	7,934	36,090	21,374	4–4	2–5
New York	43	139,148	288,211	197,610	2–1	1–3
New Jersey	26	15,181	31,336	18,111	2–0	1–1
Pennsylvania	59	17,120	52,021	63,884	3–0	3–5
Maryland	19	4,470	12,783	7,027	2–6	1–4
Delaware	8	1,831	3,525	2,362	1–6	1–2
West Virginia	19	70	75	55	1–0	0–6
Ohio	76	3,278	11,465	8,535	3–3	2–4
Indiana	148	2,077	10,644	4,225	5–1	2–0
Illinois	92	70,518	35,053	17,630	3–2	1–5
Michigan	85	9,882	33,745	19,408	3–3	2–0
Wisconsin	52	8,059	44,445	33,825	5–4	4–1
Minnesota	11	2,796	30,280	18,043	10–6	6–3
Iowa	121	944	3,991	1,899	4–2	2–0
North Dakota	9	221	1,386	194	6–2	0–6
South Dakota	10	173	982	1,095	5–5	6–2
Nebraska	9	395	2,449	900	6–1	2–2
Missouri	53	1,437	4,281	10,785	3–0	7–4
Totals	975	351,366	881,866	613,482	2–4	1–5

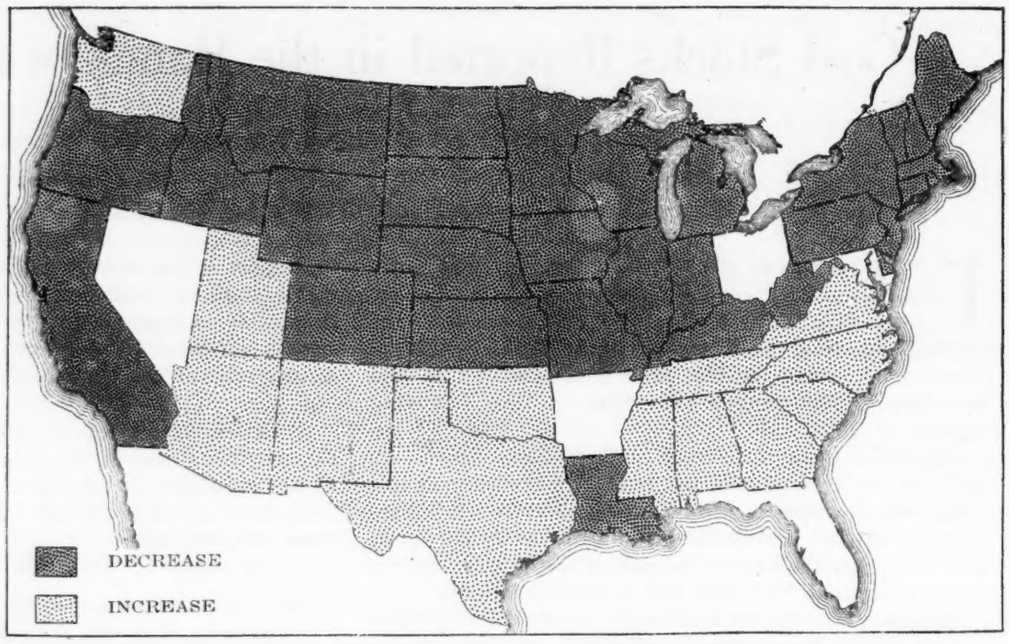
(a) Includes shrinkage and yard losses. (b) Calculated at rate of deliveries during March, April, and May, 1920. Figures represent weeks and days.

TABLE III. WEEKS' SUPPLY OF ANTHRACITE IN HANDS OF RETAIL DEALERS AT CURRENT RATE OF DELIVERY
(Figures represent weeks and days)

State	1919 Jan. 1	1919 Apr. 1	1920 Mar. 1	1920 June 1	Increase or Decrease March 1, 1920 Over April 1, 1919	Increase or Decrease June 1, 1920 Over March, 1920
Maine	4–1	4–3	3–6	5–3	— 0–4	+ 1–4
New Hampshire	5–0	7–0	2–5	3–4	— 4–2	+ 0–6
Vermont	9–4	7–5	1–4	4–1	— 6–1	+ 2–4
Massachusetts	6–4	7–2	4–1	2–6	— 3–1	— 1–2
Connecticut	10–2	8–0	5–3	1–5	— 2–4	— 3–5
Rhode Island	12–0	12–4	4–4	2–5	— 8–0	— 1–6
New York	3–3	2–0	2–1	1–3	+ 0–1	+ 0–5
New Jersey	3–4	2–6	2–0	1–1	— 0–6	= 0–6
Pennsylvania	7–0	5–4	3–0	3–5	— 2–4	+ 0–5
Maryland	3–1	3–0	2–6	1–4	— 0–1	— 1–2
Delaware	3–5	2–4	1–6	1–2	— 0–5	— 0–4
West Virginia	3–1	1–1	1–0	0–6	— 0–1	— 0–1
Ohio	6–4	8–3	3–3	2–4	— 5–0	— 0–6
Indiana	10–4	8–5	5–1	2–0	— 3–4	— 3–1
Illinois	4–4	8–1	3–2	1–5	— 4–6	— 1–4
Michigan	8–6	8–2	3–3	2–0	— 4–6	— 1–3
Wisconsin	8–3	3–2	5–4	4–1	+ 2–2	— 1–3
Minnesota	7–5	4–6	10–6	6–3	+ 6–0	— 4–3
Iowa	8–4	8–6	4–2	2–0	— 4–4	— 2–2
North Dakota	6–4	5–0	6–2	0–6	+ 1–2	— 5–3
South Dakota	7–0	4–0	5–5	6–2	+ 1–5	+ 0–4
Nebraska	24–4	13–5	6–1	2–2	— 7–4	— 3–6
Missouri	3–6	4–6	3–0	7–4	— 1–6	+ 4–4
Totals	5–1	4–2	2–4	1–5	— 1–5	— 0–6

Dealers' Stocks of Soft Coal

From March 1 to June 1 stocks of soft coal in the hands of retail dealers decreased generally in the North and increased in the South. A white area indicates no change.



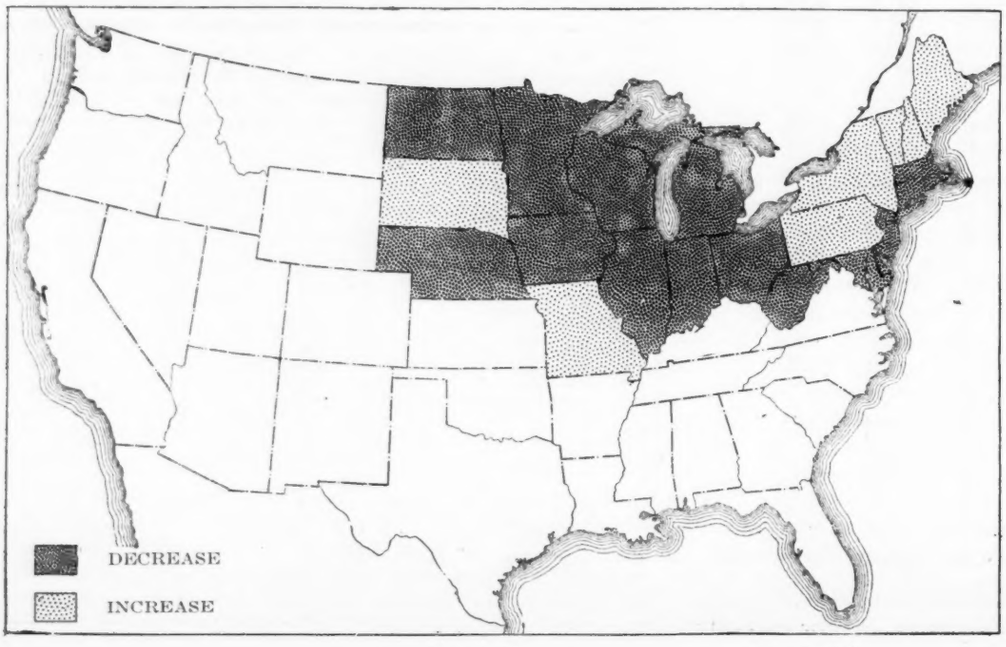
made between these stocks and those held by retailers in the first quarter of 1919. Partly because of the mild winter of 1918-1919, stocks on hand as of Jan. 1 and April 1, 1919, were generally larger when expressed in weeks' and days' supply than were those on March 1, and June 1, 1920. On March 1, 1920, for example, the supply was uniformly smaller than on April 1, 1919, except in the States of New York, Wisconsin, Minnesota and the Dakotas. From March 1, 1920, to June 1, 1920, stocks decreased in all States except Maine, New Hampshire, Vermont, Pennsylvania, South Dakota and Missouri.

The weeks' supply has been calculated by dividing the stocks on hand by the average weekly delivery to customers, including also shrinkage and yard losses. The rate of delivery used in calculating the supply on Jan. 1 and April 1, 1919, was the average per week during January, February and March, 1919. In calculating the supply on March 1 and June 1, 1920, the average per week during March, April and May, 1920, was used.

Allport as Arbiter Is Highly Praised

ACCEPTANCE of the award of the U. S. Bituminous Coal Commission as of March 10, 1920, in all the fields generally described as organized, with the single exception of the State of Washington, is reported by Herbert N. Shenton, recent secretary of the Bituminous Coal Commission. The last contracts or agreements filed were those between districts Nos. 14, 21 and 25 of the United Mine Workers of America and the Southwest Interstate Coal Operators' Association.

As reported in the issue of *Coal Age of* Aug. 5, page 311, agreement has been reached in the State of Washington and a new scale is expected there early this month. The representatives of the operators and of the miners on the special commission that has just completed a study of the wage situation in that state has written to Secretary Wilson commending his choice of representative for the public, James H. Allport. It is particularly significant that here is one commission that



Dealers' Stocks of Hard Coal

In the area where hard coal is most generally used, the East and Northeast, stocks increased this spring in Pennsylvania and New York, but decreased along the Seaboard and in the Central West.

made a unanimous report on a wage question. The letter of the representatives of the miners and operators contains the following paragraphs:

The undersigned, representitives respectively of the mine workers and coal operators on the coal commission for the State of Washington, take this opportunity of advising you that largely through the efforts of the fifth member, James H. Allport, selected by you at the President's direction, the commission has today completed its hearings and tomorrow presents a unanimous report and recommendation to the joint conference of miners and operators.

We wish to sincerely thank you for having selected Mr. Allport, as both sides are completely satisfied with the intelligent and entirely impartial manner in which he has conducted the investigations and hearings, and we feel that his findings, upon which our unanimous report is based, meet the difficult situation in this district with the least possible injustice or loss to the two interests involved.

Colonel Wentz Predicts the End of Speculation in Coal

Senator Calder Told of Movement Instituted by Coal Men—Mr. Willard Opposes Restriction of Exports —Priority Unnecessary Next Year

TESTIFYING before the Senate Committee on Reconstruction and Production at the Engineering Societies Building in New York on Thursday, Aug. 12, Colonel D. B. Wentz, president of the National Coal Association, told Senator Calder, the chairman, that a strong movement is now afoot among coal men to halt speculation in tidewater coal for export. Prices have been affected by this speculation, he said, but he ventured the opinion that the same condition exists in the markets for cement, steel and other products of a like nature.

Discussing the shortage of bituminous coal in the Eastern States, Colonel Wentz said he thought it was caused by poor distribution rather than a lack of production. He conceded that there was a present shortage of about 20,000,000 tons but predicted that this shortage would be made up within the current year at the present rate of improvement in the transportation situation and with the increased output. Along with the increased supply, Colonel Wentz declared, will come an end to excessive coal prices and other evils.

Curtailing coal exports will not solve present difficulties, he said, although at various tidewater points like New York there has cropped up a group of "speculative adventurers" who have acquired large stocks of bituminous coal which they hold for purely speculative purposes.

"We are not in sympathy with this sort of gambling in coal," he said, "and I may say that coal operators, legitimate exporters and transportation men are now at work on plans, which I am not at liberty to disclose, which we believe will within thirty days halt this speculative evil in coal export, with its attendant influence in maintaining exorbitant prices for domestic coal at tidewater points."

Senator Calder declared that he approved of this action and urged that the coal men make all haste in putting their efforts into effect.

Colonel Wentz followed Daniel Willard, president of the Baltimore & Ohio R.R., on the witness stand. Mr. Willard took up the entire morning session of the hearing with a discussion of the various phases of the coal question as well as some of the factors that enter into the question of the housing shortage with which Senator Calder is particularly concerned at this time. For the most part Mr. Willard's testimony followed closely the evidence he gave before the Interstate Commerce Commission at a recent hearing.

He told of a recent visit to Admiral Benson, head of the Shipping Board, in an effort to procure a lower all-water rate for coal shipments to New England, but said that he had been unsuccessful. Admiral Benson informed him, Mr. Willard testified, that nothing could be done at the present time.

Senator Calder here interrupted the witness to say that he also had communicated with Admiral Benson for the same purpose. Many of the Shipping Board boats, the Senator said, are lying idle with crews on board in Hampton Roads and other harbors along the Atlantic seaboard and he emphasized the importance of moving coal even if it had to be done at a loss to the Government.

Just before the armistice, continued Mr. Willard, there was a greater supply of coal in this country than he could recall at any previous time. Later these stocks were diminished and no reserve maintained because most consumers expected a drop in price. This depletion of reserves and the strike of last autumn cut the visible supply between 45,000,000 and 50,000,000 tons.

Mr. Willard was asked by Senator Calder if he was inclined to favor the restriction of coal exports, and the former answered that he was not.

"What I am considering is whether we are going to gain much standing among the nations if we sell coal which costs $4 a ton for anywhere from $30 to $60 a ton," said Senator Calder. "Will our foreign friends not say to us 'Yes, you give us the coal but you take our skins for it'?"

"It does not seem to me that anything helpful would come from restricting outgoing coal," answered Mr. Willard, and he then pointed out that exports now amount to 2,000,000 tons a month against aggregate shipments of one-quarter that amount in the same period under normal conditions. In his opinion priority orders will not be necessary next year although he saw no likelihood of rescinding before that time the priority order already granted by the Interstate Commerce Commission.

Mr. Willard concluded three hours of testimony with an optimistic statement about the railroad prospect, saying:

"The workmen seem to be generally satisfied with the wage increases and from all directions I hear that men are working better. Officers of the roads themselves have got new life. Most of the roads have been potentially 'busted' for two years. It isn't human for a man to get up on his tiptoes and do the best that is in him when after he is done he has got nothing to show for it.

"Today the roads are potentially, as a whole, solvent, and I have never seen the railroad managers in this country making greater efforts than they are making today to render service and meet new standards. There is going to be a steady increase, beginning right away, in the amount of business done. You are already beginning to get the benefit of the rate increase, and the rate increase has not yet gone into effect."

Railroads Are Sustained in Assigned-Car Suit

On Appeal from District Court at Philippi, W. Va., Circuit Court Decides Against Lamberts Run Coal Co.—Holds Interstate Commerce Commission Has Power in Emergency to Set Aside Car Rules

CONCLUDING that the making and promulgation of rule 8, as amended on April 16, 1920, was clearly within the power of the Interstate Commerce Commission, the U. S. Circuit Court for the Fourth Circuit handed down a decision on Aug. 11, 1920, dissolving the injunction obtained by the Lamberts Run Coal Co. in the district court at Philippi, W. Va., against the Baltimore & Ohio R.R., the object of which was to prevent the railroad from resorting to assigned cars in obtaining fuel coal. In other words, in this particular suit the court has held that the commission has the right and power to permit the use of assigned cars. It is expected that the National Coal Association will appeal to the U. S. Supreme Court.

Circuit Judge Woods in his written opinion states:

In the order or notice to carriers and shippers promulgating the amended rule the commission states that in its opinion an emergency existed by reason of the continued shortage of coal cars, the cessation of Government control, and the importance of meeting railroad-fuel requirements without the necessity of carriers resorting to confiscation of commercial coal. As authority for this order the commission relies on Section 1 of the Interstate Commerce Act as amended by paragraph 15 of Section 402 of Transportation Act of Feb. 28, 1920.

The authority given to the commission by subdivision 15 in cases of emergency "to suspend the operation of any or all rules, regulations or practices then authorized with respect to car service," does not extend to the suspension of a positive and definite enactment of the statute covering this subject. Rules, regulations and practices mean the rules, regulations and practices adopted by the commission or by the railroads in conformity to the act or not forbidden by it, in contradistinction to the definite enactments of the statute. This appears from subdivisions 11 and 14 of the same section and other portions of the statute. If therefore the order of the commission had no other basis than the authority conferred to suspend rules, regulations and practices, it would be without support.

The Congress has not, however, conferred on coal mines equality among themselves—the right of each mine in time of coal shortage to be furnished cars in proportion of mine ratings without regard to the public welfare and safety. Coal is a public necessity. From many causes, crises and emergencies may arise in mine operation, transportation and unexpected needs of the public which cannot be anticipated and justly provided for by inelastic legislative enactment. It would be strange indeed, if the Congress had guarded the private interests of the mines by an inflexible enactment of equality, lodging nowhere the power to relieve the public against unforeseen conditions which would make rigid proportionate distribution of cars disastrous to the country or to some portion of it. This would be to confer benefits on individuals at the sacrifice of the public safety and welfare.

We think the Congress has clearly conferred on the commission the power to grant relief in such conditions by providing that "whenever the commission is of opinion that shortage of equipment, congestion of traffic or other emergency requiring immediate action exists in any section of the country the commission shall have and is hereby given authority (d) to give directions for preference or priority in transportation, embargoes or movement of traffic under transit at such time and for such periods as it may determine, and to modify, change, suspend or annul them."

The true construction required by the spirit and the letter of the statute is this: Subdivision 12 provides for equality among coal mines in proportion to ratings in time of the usual long existing car shortage. But recognizing the necessity of a degree of flexibility, the Congress conferred upon the commission power in case of a car shortage which in their opinion was so much beyond the usual as to constitute an emergency, to supplant or modify equality among the mines according to ratings with preferences and priority to such an extent as will in its opinion meet the emergency.

All the specific provisions of the statute for equality among designated classes is thus modified by the general provision for their suspension by the commission when they find an emergency requiring it.

Our conclusion is that the making and promulgation of rule 8 as amended was clearly within the power of the commission.

The commission having based their order on their opinion that an emergency such as was contemplated by the statute existed, it is not within the power of the Court to annul their order on the ground that the administrative power conferred on the commission was unwisely or improvidently exercised.

The plaintiff's right to equality in the distribution of coal cars was conferred by the statute. The Congress in conferring the right could place upon it any limitations or conditions it saw fit, including the limitation that the right might be suspended by the Interstate Commerce Commission in its discretion without a hearing. The plaintiff claiming the benefits of the statute cannot assert the unconstitutionality of its limitations.

Bituminous Coal Loaded Into Vessels at Lake Ports as Dumped by Docks for Season to End of July

(In Net Tons)

Ports	Railroads	1920 Cargo	1920 Fuel	1920 Total	1919 Cargo	1919 Fuel	1919 Total	1918 Cargo	1918 Fuel	1918 Total
Toledo	Hocking Valley	982,138	17,619	999,757	2,405,550	71,532	2,477,082	1,939,874	59,644	1,999,518
	Toledo & Ohio Central	475,130	25,843	500,973	730,336	21,761	752,097	903,419	25,311	928,730
	Baltimore & Ohio	298,523	11,733	310,256	1,347,207	30,452	1,377,659	992,560	15,945	1,008,505
Sandusky	Pennsylvania	400,166	4,802	404,968	731,157	20,742	751,899	965,116	23,800	988,916
Huron	Wheeling & Lake Erie	806,672	50,894	857,566	942,322	30,797	973,119	932,071	35,784	967,855
Lorain	Baltimore & Ohio	1,125,146	99,181	1,224,327	1,711,704	88,591	1,800,295	1,224,763	36,183	1,260,946
Cleveland	Pennsylvania	170,644	57,028	227,672	1,276,761	134,220	1,410,981	1,096,771	146,617	1,243,388
	Erie	19,903	1,955	21,858	97,188	3,114	100,302	298,530	9,337	307,867
Fairport	Baltimore & Ohio				16,692	12,954	29,646	54,823	21,832	76,655
Ashtabula	New York Central	392,526	108,069	500,595	1,038,634	78,680	1,117,314	779,164	98,772	877,936
	Pennsylvania	405,559	40,375	445,934	1,044,607	46,356	1,090,963	624,092	41,241	665,333
Conneaut	Bessemer & Lake Erie	1,104,633	17,936	1,122,569	712,094	3,492	715,586	1,021,224	17,111	1,038,335
Erie	Pennsylvania—West	40,219	2,579	42,798	429,929	20,772	450,701	303,540	17,419	320,959
	Pennsylvania—East	32,479	37,157	69,636	133,104	7,275	140,379	170,348	3,910	173,958
Totals		6,253,738	475,171	6,728,909	12,617,285	570,738	13,188,023	11,305,955	552,906	11,858,901

News from the Capital

By Paul Wooton

No Settlement As Yet of Anthracite Wage

THE Anthracite Coal Commission, which contemplated being able to submit its report to the President by the end of last week, now states that this will be impossible and that the report probably will not be submitted until the end of this week.

Railroads Show Greatly Improved Service In Movement of Coal to Lakes

NOT in many weeks has the coal loading territory from Illinois eastward been so well cared for in the matter of car supply as was the case in the ten days ending Aug. 13, in the opinion of A. G. Gutheim, of the Car Service Commission of the American Railroad Association. As a consequence the whole transportation performance has shown decided improvement. There have been better dumpings at Lake Erie as a result of the splendid loading record on a number of roads over which Lake shipments move.

The Pennsylvania R.R. for the first time met its Lake obligations during the week ended Aug. 14. It even did something toward offsetting its deficit. That the Pennsylvania is making a sincere effort, Mr. Gutheim points out, is shown by the fact that it has embargoed other business so as to hasten the movement of coal and is cutting down on the return loading of coal cars in order to expedite their movement.

New Rail Rates to Add 80c on Tidewater Coal from Smokeless Field

UNDER the new railroad rates all tidewater coal from the smokeless field is to be advanced 80c., it is undertood. This will mean that the rate has been advanced 100 per cent since March, 1917. On April 1, 1917, it was increased from $1.40 to $1.50. Under the Railroad Administration's general advance on June 25, 1918, the rate was increased to $2. Under Ex Parte 74, to be made effective Aug. 26, the rate presumably will be $2.80.

The Southern Ry. has announced that rates will be increased as follows at important centers in the South:

Danville, Va.—Coal Creek and Appalachia, old rate, $3.10; new rate, $3.87½.

Greensboro, Durham and Raleigh, N. C.—Coal Creek, Appalachia and Dante, old rate $3; new rate, $3.75.

Winston-Salem, N. C.—Coal Creek, Appalachia, old rate, $2.90; new rate, $3.62½.

Charleston, S. C.—Coal Creek, Appalachia and Dante, old rate $2.50, new rate, $3.12½.

Columbia, S. C.—Birmingham, Jefferson County, Coal Creek, Appalachia and Dante, old rate, $2.75; new rate, $3.44.

Atlanta—Birmingham and Jefferson County, old rate, $1.70; new rate, $2.12½. Walker County, old rate, $1.80; new rate, $2.25. Coal Creek, old rate, $1.85; new rate, $2.31½. Appalachia and Dante, old rate, $2.20; new rate, $2.75. Mackin, Birmingham and Jefferson County, old rate, $2.20; new rate, $2.75. Walker County, old rate, $2.30; new rate, $2.87½. Coal Creek, old rate, $2.35; new rate, $2.94.

Augusta, Ga.—Birmingham and Jefferson County, old rate, $2.55; new rate, $3.19. Walker County, old rate, $2.65; new rate, $3.31½. Coal Creek, Appalachia and Dante, old rate, $2.70; new rate, $3.37½.

Savannah and Brunswick, Ga.—Birmingham and Jefferson County, old rate, $2.45; new rate, $3.06½. Walker County, old rate, $2.55; new rate, $3.19. Coal Creek, Appalachia and Dante, old rate, $2.60; new rate, $3.25. Birmingham, Ala., old rate, 65c.; new rate, 81¼c. Jefferson County, old rate, 70c.; new rate, 87½c., Walker County, old rate, 80c.; new rate, $1.

Mobile, Ala.—Birmingham, Jefferson County, Blocton and Walker County, old rate, $1.60; new rate, $2.

Chattanooga, Tenn.—Coal Creek, old rate, $1.15; new rate, $1.44. Birmingham and Jefferson County, old rate, $1.55; new rate, $1.94. Appalachia and Dante, old rate, $1.60; new rate, $2.

Knoxville, Tenn.—Coal Creek, old rate, $1.10; new rate, $1.37½. Appalachia and Dante, old rate, $1.60; new rate, $2.

Memphis—Jefferson and Walker Counties, old rate, $1.75; new rate, $2.19. Birmingham, old rate, $1.85; new rate, $2.31½. Coal Creek, old rate, $2.20; new rate, $2.75.

Meridian, Miss.—Birmingham, Jefferson and Walker Counties, old rate, $1.80; new rate, $2.25.

New Orleans—Birmingham, Jefferson County, old rate, $2; new rate, $2.50.

Jacksonville, Fla.—Birmingham and Jefferson County, old rate, $2.50; new rate, $3.12½. Walker County, old rate, $2.60; new rate, $3.25. Coal Creek, old rate, $2.70; new rate, $3.37½. Appalachia and Dante, old rate, $2.95; new rate, $3.69.

Rail Shipments of Coal to New England Continue Heavy

THE rail movement of bituminous coal to New England increased again during the week ended Aug. 7. Reports furnished the Geological Survey by the American Railroad Association place the number of cars forwarded to New England destination through the five Hudson River gateways of the Harlem River, Maybrook, Albany, Rotterdam and Mechanicsville at 6,732. With the single exception of the week of July 24, when 7,033 cars were forwarded, this was the largest of the present year. It was 2,089 cars, or 45 per cent, greater than the corresponding week of 1919.

Joint Scale Committee of Central States Deliberates Wage

Operators Refuse Mine Workers' Demand of $2 Increase for Daymen and Ten Cents Per Ton for Pick and Machine Miners

COAL operators and miners of the joint scale committee of the Central Competitive Field, comprising the miners of western Pennsylvania, Ohio, Indiana and Illinois, in session at Cleveland, were deadlocked late Monday night, Aug. 16, on the demands of the daymen of the United Mine Workers of America for a reopening of the scale.

The operators refused the demand of the miners of $2 a day for day and month workers in or around the bituminous mines and for 10c. a ton increase for all tonnage men, both pick and machine, the increases to be retroactive to Aug. 1; for the abolition of the automatic penalty clause fining miners $1 a day for illegal strikes and for settlement of differentials within and between districts by the districts affected.

The operators, however, offered to compromise by granting the day and month men an increase equivalent to the increase granted the pick miners by the President's coal commission last spring. Vice-president Miller of the Illinois Coal Operators' Association said this increase would amount to between 35 and 72c. per day, depending upon what district was taken as a basing point. He said it is probable that the Hocking district of Ohio would be taken as the basing point, which would mean an increase of about 50c. a day.

The operators refused to discuss the question of fines for illegal striking.

The miners voted solidly against the acceptance of this compromise offer, and a joint subcommittee composed of eight members of each side was appointed to discuss a settlement.

A Cleveland agent of the Federal Department of Justice was watching the conference.

The miners' representatives on the committee are Robrt R. Gibbons and William Hargest, western Pennsylvania; John Moore and Lee Hall, Ohio; Edward Stewart and William Mitch, Indiana; Frank Farrington and Harry Fishwick, Illinois, and John L. Lewis, president of the United Mine Workers, ex-officio. The operators are represented by John Donaldson and William Henderson, Western Pennsylvania; C. E. Maurer and G. C. Weitzel, Ohio; M. L. Gould and P. H. Penna, Indiana; E. C. Searles and H. C. Perry, Illinois.

When the strike in the Central Competitive Field came to an end, the President on Aug. 10 wrote a letter to Thomas J. Brewster, chairman of the Joint Scale Committee of the Central Competitive Region, requesting that committee to meet in Cleveland on Friday last, Aug. 13, "for the purpose of considering any inequalities that may have occurred in the award of the Bituminous Coal Commission and the joint agreement growing out of the same."

The meeting opened as requested, but after organizing adjourned till 10 o'clock on the following day, as many of the mine workers' representatives had not arrived. Michael Gallagher, a Cleveland operator, was elected chairman, and William Green, secretary-treasurer of the United Mine Workers, was named secretary. A caucus was held by the mine workers, but with no decision reached till Saturday, Aug. 14, when the committee reassembled and the mine workers demanded a wage increase of $2 a day for daymen and 10c. per ton advance on both pick and machine mining, both to date from Aug. 1.

It is realized that whatever is secured in the Central Competitive Field, which covers only western Pennsylvania, Ohio, Indiana and Illinois, will be the basis on which all other settlements will be made, if any. Consequently the representatives of central Pennsylvania, Iowa, Washington, Kentucky, Oklahoma and Kansas are all present ready to voice the yearnings for a new scale from the men in their several districts.

Frank Farrington loudly announced "I don't know what the rest will get but I do know that the Illinois men will get $8 a day." Suggestions that the operators and mine workers were putting their heads in the noose of the law, being, many of them, under indictment for having met before to discuss a wage scale, was met, it is said, by the statement of operators' officials that this difficulty "had been taken care of." There was a suggestion that Judge A. B. Anderson would regard this meeting to modify the Bituminous Coal Commission's arbitrament as in contempt of court, though the prior meeting to form a contract in compliance with the arbitrament was allowed to pass without action, assurances that this would be the case having been thought to have been obtained in that case also.

Exact Limits of Area Covered by Strike

THE U. S. Geological Survey thus records the paralysis of operations in the Eastern Interior field caused by the strike of the daymen; the recital is based on the week ending July 31:

"For the first time since the coal strike in November, 1919, labor became the dominant factor limiting production. Adjacent districts benefited by the strike, as they received the cars that it released. No general improvement in car supply, however, occurred at points distant from the strike area.

"Labor shortage and strikes combined caused a loss of 31.8 per cent of full time, as against 13.7 per cent during the preceding week and 6.4 per cent in the last week prior to the strike. The loss attributed to transportation was but 19.6 per cent. The influence of the disturbance is clearly seen in the percentage of full-time capacity realized in actual output, which declined from 58.2 in the week of July 17, first to 57.7, and later, in the week of July 31, to 45.9 per cent.

"The strike centered in Illinois and Indiana. Practically all the mines in southern Illinois were closed down, except for about 10 per cent of the capacity in the Belleville district. In central Illinois less than 3 per cent of the ordinary output was attained. The shutdown was less complete in the northern half of the state, but even there more than three-quarters of the capacity reporting in the Fulton-Peoria district was down, and in the northern Illinois field the proportion down was nearly as great.

"Across the neighboring State of Indiana the strike spread like a great wave. On Monday, July 26, fifteen mines in the State were down. By Saturday practically every mine closed. The tonnage lost because of the strike averaged 75 per cent of capacity.

"Nor were Illinois and Indiana the only districts to

suffer. The wave crossed the Mississippi; in Iowa 13.6 per cent and in Kansas 23.9 per cent of full time was lost because of the strike. In the Eastern fields the labor situation changed but little. The deadlock in the Kenova-Thacker district continued to keep idle 75 per cent of the capacity of the field. In Alabama, as before, 10 per cent of the capacity was down. Labor losses in central Pennsylvania amounted to 3.4 per cent in section A, 12.6 per cent in section B, and 10 per cent in section C."

Indiana Coal Commission Begins Work

JESSE E. ESCHBACH, chairman of the Indiana Coal and Food Commission, has mailed to all mine operators and coal wholesalers and retailers in the state a copy of the Coal Commission Act passed by the recent special session of the State Legislature, together with a notice that the law is now in effect and application blanks for licenses and blanks on which information concerning the amount of coal mined and sold and the prices at which it is sold have been made out. He also announced that John O'Neal, a field examiner of the State Board of Accounts, has been transferred to the Coal Commission as an accountant. Mr. O'Neal came to Indianapolis from Washington, Ind.

Open-Top Priority for Coal Extended 30 Days; No Assigned Cars for Storage

EFFORTS on the part of public utilities to have their assigned car privilege extended so as to include coal for storage were unsuccessful. Their principal drive was made, however, to secure the extension of Order No. 9. This extension was granted in Service Order No. 12, the full text of which follows:

It is ordered that Service Order No. 7, entered June 19, 1920, as amended by Service Order No. 9, entered July 13, 1920, and that Service Order No. 9 as amended by order entered July 29, 1920, be, and they are hereby, continued in force and effect for a period of ninety consecutive days beginning with June 21, 1920.

And it is further ordered that copies of this order be served upon the carriers upon whom service has been made of Service Orders Nos. 7 and 9, and that notice of this order be given to the general public by depositing a copy hereof in the office of the secretary of the commission at Washington, D. C.

Attempt to Murder Willis Branch Miners

IN THEIR desperate effort to close down the Willis Branch and other independent mines in the New River fields, United Mine Workers about 2 a.m. of Aug. 8 exploded a heavy charge of dynamite beside the engine house of the Willis Branch Coal Co. at Willis Branch and followed that by heavy firing from high-powered rifles. The firing came from the Raleigh side in the direction of Cirtsville, from between Cirtsville and Weirwood and also from the vicinity of Weirwood, and volleys were fired first from one direction and then from another, about 500 shots in all being noted by residents. A large number of the company houses were hit, some of them several times. Many of the people in the Willis Branch community were badly frightened. At one point from which the firing came 83 empty shells were picked up after daylight on the morning of Aug. 8. Two members of the state police were on the property at the time of the shooting. The charge is made that a deliberate attempt is being made to murder the miners at work at Willis Branch.

Tidewater Coal in August

STATISTICS supplied the Geological Survey by the Tidewater Bituminous Coal Statistical Bureau show that during the first week of August the movement to New England reached 256,000 net tons, while exports were 490,000 net tons. This was at a monthly rate of 1,100,000 tons to New England and 2,060,000 tons for export. In June, the latest month for which complete figures are available, the New England movement was 772,000 tons and the exports 2,175,000 tons. The first week of operation of Service Order No. 11 thus saw a slight reduction in exports and a decided increase in the tonnage to New England. The latter, however, was still somewhat short of the goal of 1,250,000 net tons per month fixed by the order. By ports, the week's performance was as follows:

TIDEWATER BITUMINOUS COAL SHIPMENTS FOR FIRST WEEK OF AUGUST, 1920, BY PORTS

(In Net Tons)

Destination	New York	Philadelphia	Baltimore	Hampton Roads	Totals Dumped
Coastwise to New England	96,000	9,000	26,000	125,000	256,000
Exports	.....	43,000	160,000	287,000	490,000
Bunker	72,000	18,000	27,000	80,000	197,000
Inside capes	.....	45,000	26,000	9,000	80,000
Other tonnage	168,000	.....	.....	10,000	178,000
Totals	336,000	115,000	239,000	511,000	1,201,000

The foregoing figures, however, represent coal dumped at the ports rather than coal loaded at the mines for transshipment to New England via tide. Light on the movement from the mines is thrown by the statement furnished by the American Railroad Association in summarizing the situation that at the end of the first week's operation under the order shipments were 1,588 cars behind schedule, and as the total initial allotment for New England was 923 cars per day the movement may be said to have been about 1.7 days in arrears on Aug. 7.

Text of the New Reconsignment and Demurrage Order

SPECIAL Permission No. 50,321, embodying new reconsignment rules and penalty charges for detention of railroad equipment, emergency penalty charges for detention of all open-top cars and cars loaded with lumber, coal and coke, which was issued by the Interstate Commerce Commission July 31, is as follows:

Reconsigning Rules and Penalty Charges

Ordered that all carriers and their lawfully appointed agents are hereby authorized to publish and file consecutively numbered supplements to or reissues of their tariffs, such supplements to or reissues of tariffs to establish reconsigning rules applicable on all freight in open-top cars and coal and coke in all cars, and penalty charges for detention to all open-top cars and cars loaded with lumber, coal, or coke, as hereinafter set forth, and to be made effective upon not less than five days' notice to the commission and the general public by posting and filing in the manner required by law, and to supersede and cancel rules and charges in conflict therewith.

Rules for Open-Top Cars and Coal and Coke

Will not apply on coal originally consigned to Lake or Tidewater ports for transshipment to vessels and reconsigned to other ports or to other consignees at same port, nor to coal consigned to Lake ports for transshipment to vessels and left over after the close of navigation.

Only one reconsignment will be permitted, namely:

1. If reconsignment order is received in time to permit instructions to be given to yard employees prior to arrival of shipment at billed destination or if such billed destination is served by a terminal yard then prior to arrival at the terminal yard a charge of $2 per car will be made for this service.

2. If reconsignment order is received in time to permit instructions to be given to yard employees within twenty-four hours after arrival of car at destination or if destination is served by a terminal yard then within twenty-four hours after arrival at such terminal yard a charge of $5 per car will be made for this service.

3. When not reconsigned as above any order for reconsignment, diversion or reshipment will subject the freight traffic to the sum of local rates to and from points of reconsignment plus $5 per car.

Rules Nos. 1 and 3 apply to reconsignments at all points in the United States; and in addition thereto rule 2 will apply to reconsignments at points within the territory east of the Illinois-Indina state line (not including Gary and points within the Chicago switching district) and on and north of the Ohio River, also points on the lines of the Chesapeake & Ohio, Norfolk & Western and Virginian railroads east of Cincinnati.

EMERGENCY PENALTY CHARGE FOR CAR DETENTION

Will not apply on cars held at ports for transshipment by vessel.

To prevent undue detention of equipment under present emergency the following additional penalities for detention of equipment will apply:

1. On cars loaded with lumber held for reconsignment a storage charge of $10 per car will be assessed for each day or fraction of a day that car is held after forty-eight hours after the hour at which free time begins to run under the demurrage rules.[1]

2. On all open-top cars and on all cars loaded with coal or coke not released within the free time as prescribed in the National Car Demurrage Rules, J. E. Fairbanks, I. C. C. No. 8, supplements thereto or reissues thereof, a storage charge of $10 per car per day or fraction of a day will be made until car is released.

3. The charges provided above will be in addition to any existing demurrage and track storage charges and are subject to the provisions of the National Demurrage Rules with respect to notifiction, computing time and allowances provided for in Rule 8 thereof.

Expires with close of business Jan. 1, 1921.

This authority does not waive any of the requirements of the commission's published rules relative to the construction and filing of tariff publications nor any of the provisions of the Act to Regulate Commerce, as amended, except as to the notice to be given.

This permission is limited strictly to its terms and does not include later supplements to or reissues of the tariffs issued or amended thereunder. It is void unless the tariffs or supplements issued thereunder are filed with the commission within thirty days from the date hereof, or within such shorter time as may be designated herein. Such tariffs and supplements must bear the notation "Issued on five days' notice, under Special Permission of the Interstate Commerce Commission No. 50,321, of July 31, 1920."

[1]Applies on lumber, shingles, poles, piling, mine timber, box barrel or crate material and other forest products on which the lumber rates apply.

Demand Transportation to Working Places

ABOUT three hundred men employed at mine No. 210 of the George M. Jones Co. near Athens, Ohio, operated under the name of the Ohio Collieries Co., went on a strike recently because the drivers refused to haul the men to their working places. The drivers demanded overtime for the work, which was refused by the company. Efforts are being made to settle the matter.

Forbids Wagon Mines to Use Open-Top Cars

IN PITTSBURGH coal circles the presumption is that the railroads will carry out the order issued by the Public Service Commission of Pennsylvania after the hearing Aug. 9, that only box cars be furnished for wagon or truck loading of coal. It is known positively that since the order was issued some open-top cars have been furnished, but only a few instances are known, and it is thought possible that the furnishing of these cars was in fulfillment of old promises, in which case a repetition would be improbable.

Utah Produces Nearly Two Million Tons In Five Months

COAL production in Utah for the first five months of the current year aggregated 1,927,000 tons, according to figures just received by C. A. Allen, of the Bureau of Mines. The figures are based on the number of cars of coal loaded by the coal-carrying roads and are ascertained weekly.

Officials to Confer on Effect of Service Orders on Shipping Charters

THE effect of the Interstate Commerce Commission's service orders on ship charters is to be the subject of a conference in the near future between Interstate Commerce and Shipping Board officials.

It is understood that the Shipping Board has requested a priority order for its coal requirements.

Big Spot Prices Cause Kentucky Strike

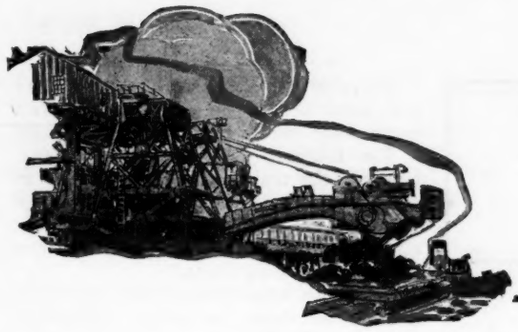
FIVE coal mines on Straight Creek, Bell County, Kentucky, closed down Aug. 5 because the men believe they should be getting a larger part of the big prices being paid for spot coal. About three thousand men were laid idle. The mines affected are those of the Federal Coal Co., the Roth Coal Co., the Waggoner Coal Co., the Four Jacks Coal Co. and the Liberty Coal Co. A conference of operators regarding the situation was held Aug. 6.

Pennsylvania Service Commission Orders Cars to Carry Building Materials

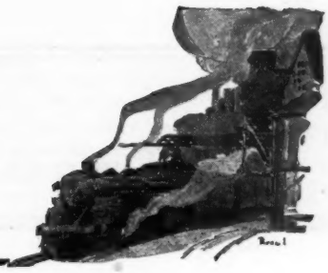
THE Public Service Commission of the State of Pennsylvania has issued an order requiring railroads in that state to furnish 1,400 open-top, hopper-bottom cars weekly for carrying road and building materials. It is believed that the action on the part of Pennsylvania will be duplicated in numerous states and unless it can be shown to be in conflict with the Interstate Commerce Commission's orders will have decided bearing on coal transportation.

New Freight Rates to Add 90c. a Ton To Washington's Coal Bill

PUBLIC Utilities in Washington, in asking for an increase in rates, estimate that the new freight rates will add 90c. per ton to the cost of their coal. Their requirements are 215,000 tons annually.



Production and the Market



Weekly Review

Production Gains with Better Car Supply — New England Shipments Approach Scheduled Amounts — Prices Decline Slightly—Continued Increase in Production Is Foreshadowed—Lake Dumpings Over Million Tons

IMPROVEMENT in the coal situation was marked and general throughout the country last week. Car supplies were more adequate, with production correspondingly heavy. The order terminating the Indiana and Illinois daymen's strike did not effect a general resumption of work until the latter part of the week ended Aug. 7. Production of bituminous coal for that week, however, is estimated by the Geological Survey to be 10,334,000 net tons, an increase of almost one million tons over the output of the previous week, although 546,000 tons less than that of the week before the strike. Loadings on Monday and Tuesday (Aug. 9-10) indicated a rapidly increasing rate of production.

Anthracite production for the first week in August was 1,757,000 net tons, a decrease of 103,000 tons from the preceding week. Beehive coke production, estimated at 409,000 net tons, was the highest in weeks.

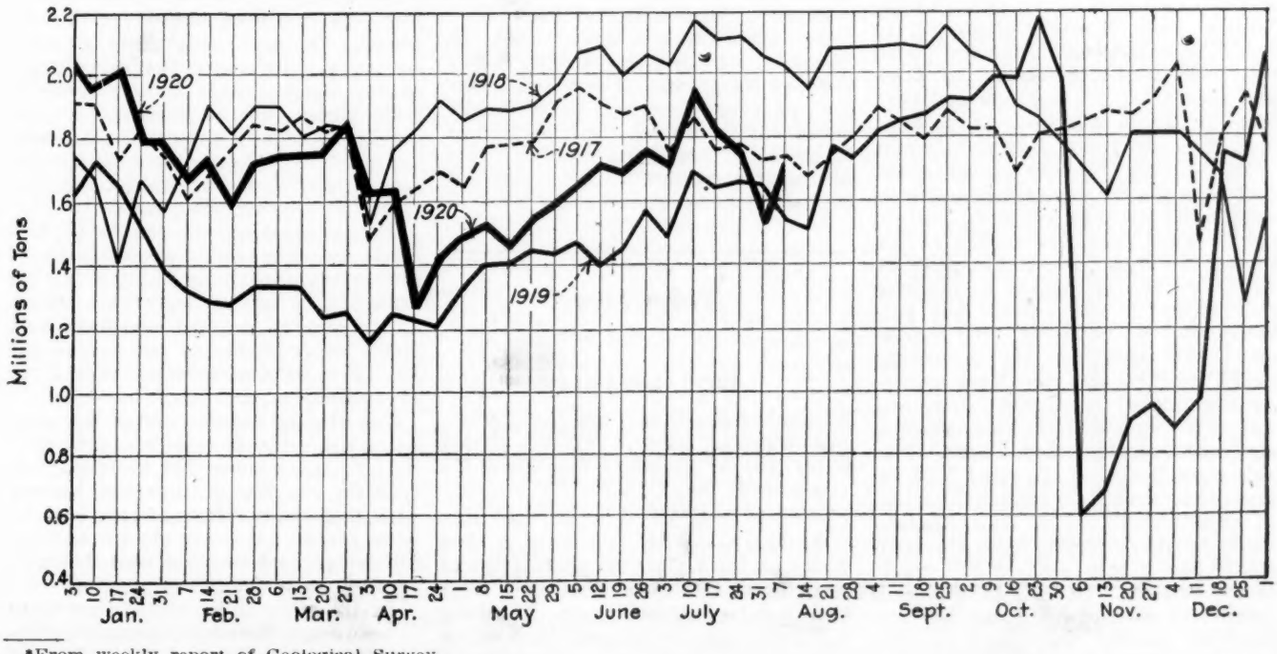
There appears to be a growing tendency on the part of buyers throughout the country to withdraw from the active market and await developments; prices are slightly off because of this. Better production increased tonnage available for industries after filling priority quotas, allaying to some extent the fears of consumers.

All-rail shipments to New England increased beyond expectation, while priority requirements via tidewater have been amply met. During the first week of August New England tidewater movement reached 256,000 net tons, while exports were 490,000 net tons. Shipments to Lakes have nearly reached the scheduled rate of 4,000 cars daily. Preliminary figures of Lake dumpings for the week ending Aug. 14 show 1,039,000 tons cargo and fuel coal, an increase of 200,000 tons over the previous week. This was easily the largest Lake tonnage handled in any week this season.

Lake Coal Dumped Season to Aug. 14
(NET TONS)

	Cargo	Fuel	Total
1919.....	13,889,110	624,765	14,513,875
1920.....	8,069,933	542,627	8,612,560

Average Daily Production of Bitumnous Coal*



*From weekly report of Geological Survey.

Reports From the Market Centers

New England

BOSTON

Prices Are Distinctly Easier—Demand Slackens—All-Rail Movement Large—Assigned Cars Shorten Supply in Certain Districts—Anthracite Receipts Improve—Demand Continues Insistent.

Bituminous—The market shows a decidedly easier tone. Consumption has been relatively light and stocks have increased to such extent that consumers are now disposed to await developments. A large share of the all-rail coal coming to this territory is on contract and as these deliveries improve there is bound to be less interest in the spot market.

Buyers are also affected by the publicity given to arrangements for increased shipments by water. A few days after the priority went into effect there was some duplication of selling effort on the part of several shippers and the buyers who must be depended upon to absorb any largely increased volume got an unfavorable impression. Operators in West Virginia offered a considerable tonnage of high-volatile coal at prices from $6@$7 per net ton at the mines and were much surprised to find New England buyers not only in doubt but actually turning down the coal.

It is hard for the trade outside this market to understand why industries continue buying spot coal all-rail at a delivered cost well above that of high volatiles from West Virginia, but it should be remembered that the latter were never well received in New England except by the railroads and that there is great aversion to possible demurrage charges at Hampton Roads.

Service Order 11 has already been the means of a considerable extra movement to Baltimore as well as to Norfolk and Newport News, but so little of this tonnage is from low-volatile districts that it is doubtful whether buyers here will respond to the extent that producers were led to expect. It has been shown this week that the percentage via Philadelphia and New York are being overshipped in normal course and that no action need have been taken on the roads serving those piers. This leaves practically all the relief for New England to come from gas coal districts, an objective for which New England would not have fought quite so strenuously had it been realized this would be the outcome. In fact, the railroads themselves seem content for the moment to observe the effect of their strenuous efforts to increase shipments of supply coal all-rail.

Movement by the rail route is increasing. Embargoes are certain to be intermittent while the Hudson River gateways are being fed to capacity, but a sustained movement of 1000 cars daily will go a long way toward correcting the New England situation.

On the N.Y.C. and connecting lines car supply has been favorable enough to make assigned cars less of an inducement to operators than is the case on the Pennsylvania. In several districts served by the latter general car supply has been much affected and assigned cars are blamed for the shortage.

The trade is watching with much interest daily developments as to the various priorities. Those in touch with Shipping Board circles see the result not only in ocean freight rates but in higher prices for bunker fuel. It is considered only a question of time when the gate will again be opened for export.

Current quotations on bituminous at wholesale range about as follows:

	Clearfields	Cambrias and Somersets
F.o.b. mines, net tons	$10.25@$11.25	$10.75@$12.25
Fo.b. Philadelphia, gross tons	13.40@ 14.65	14.00@ 15.50
F.o.b. New York, gross tons	13.75@ 15.00	14.40@ 16.00

Anthracite—From New York there has been much better movement of domestic sizes. Improvement at Philadelphia is slight, but the outlook is better. The impression is that shipments will be restored to normal volume within a few weeks.

Retail demand continues most insistent. While there is much anxiety in some communities, particularly along the New Haven road, the opinion is now that somehow there will be anthracite enough to go around. The unevenness of prices at first hand makes it very difficult for retailers to fix a satisfactory schedule for the consumer.

Tidewater

PHILADELPHIA

Embargo Against the City Being Modified — Prices Remain Firm — Steam Sizes Are in Excellent Position — Bituminous Is Quiet, Due to Price Agitation—Utility Plants Are Cared For.

Anthracite—With fall only a few weeks off the dealers are probably more anxious at this time than they have been for the past two years. The June rail strike completely upset their calculations. Up to the time of the strike most of them were well ahead of their deliveries.

There is not a dealer here who does not have orders on file that he felt reasonably certain of filling long ago.

The Reading Ry. continues an embargo in the main, but this week notices were sent out that the embargo had been modified to the extent that some of the outlying sections of the city can now receive shipments.

It will be some time before the local dealers can hope to receive shipments in sufficient volume to keep their equipment moving to capacity. The consumer demand grows stronger each week.

There have been no changes recently in the independent prices of coal, and the average figure for egg, stove and nut is $9 at mines. All independent shippers report that they are daily in receipt of offers from distant markets to buy all of the large family coal at a price of $12 at the mines.

At the mines conditions are more satisfactory, almost to the point that prevailed prior to the rail strike. It is not believed that any colliery is now losing time for the lack of cars, although all of them could use a greater number of men.

With the exception of barley, the steam trade is all that could be desired. The companies are behind their orders on buckwheat, and in some instances on rice. With their price at $4.10 the big shippers have many inquiries, most of which are declined. Independent sales of buckwheat are inclined to run higher than last week and close to $6 is about the average price now. For rice $4 is easily obtained.

Bituminous—In a way the spot market is quiet, for the reason that coal is not actually being offered by the sellers and the consumer is holding off, feeling that prices will eventually shade down considerably. Tonnages of good coal have changed hands at $13 a ton for Pennsylvania steam grades, yet pretty fair coal has been offered as low as $10.50. The gas coals seem still to command a figure on the same basis as the steam grades and at times a trifle higher, as the demand for this coal is exceedingly strong. An increasing numbers of houses are adopting the plan of offering to buy coal for the consumer on a commission basis.

The principal objection to the preferential orders is that it places the territories thus favored in the position of expecting to buy at their own prices. In the case of concerns who have contracts the order has no real objections, but other purchasers often offer quite low prices.

The plan of taking care of the vital industries here is working out quite well, for the reason that the supply of coal for the big utilities has become such that the purchase of spot coal by such plants has been almost entirely eliminated, and they are also able now to stock some fuel.

In the general industrial line there is a slowness to go after increased shipments, as with many of them on short working time they are consuming a small tonnage and they are able to ac-

cumulate a winter stock from the shipments from their regular sources.

In order to help the car supply, the railroads are asking permission to restrict the delivery of cars to the wagon mines. In this effort they are backed up by the operators who feel that the wagon mines with practically 100 per cent car supply tie up equipment which could be made much better use of in the regular trade.

Due to an embargo at Port Richmond piers, the loading of coal has been much interfered with, particularly bunkering, and there is an inclination on the part of shippers to object to the embargo as not being entirely justified by conditions.

NEW YORK

Anthracite Demand Is Stronger—Dealers Declare Stocks Will Be Adequate This Winter—Local Strikes Limit Production—Prices Are Slightly Lower.

Anthracite—Demand for steam sizes had a noticeable strengthening during the past week. Many soft coal consumers are now taking the small sizes of anthracite, not being able to secure sufficient bituminous tonnage to keep their plants running.

At line points barley demand is particularly strong. Domestic sizes continue in strong demand. Dealers are contenting themselves mostly with company shipments to avoid paying the high premiums asked for independent coal. At line points dealers continue to pay $13 and more for supplies. With a normal winter season it is expected that this city will be able to maintain an adequate supply.

Bituminous—A recession in price is looked for by some of the leading factors in the wholseale trade, due principally to the hesitancy of buyers to place orders at the present prices. One embargo after another has a tendency to restrict distribution and some are of the opinion that there will soon be an easing off. Not that the fixing of priority order tends to a more normal supply of coal, but when any particular section is favored with a certain proportion of the output of a given district, the buyer instead of taking advantage of the opportunity offered to stock up while coal is available, often holds off in expectation of better prices developing by allowing the unsold coal to pile up.

Although Order 11 is now in force nearly two weeks, practically no tonnage destined for the pool has arrived at Tidewater and there have been no sales made which would indicate the probable range. It is expected that the figure will be about $8 at the mines.

Prices range from $15.25 on Pool 18 to $17 on Pools 9 and 71. Coal can be secured at tide if consumers will pay the ruling price. There is considerable Pool 18 coal at Tidewater which has not been moved.

At mines prices range from $10 on Pool $18 to about $12.50 on Pool 10; $13 for Pools 9 and 71. Gas coals are selling around $13 to $13.75.

The strike at the Pennsylvania Coal Co.'s mines continues and the unrest among the employees has spread to other of the company's collieries, with the result that output has been considerably curtailed. This with the tie-up of the Reading's tugs has caused dealers some apprehension.

Current quotations for company coal are unchanged since last week.

BALTIMORE

Coal Men, Shipping Interests and Business Men Are Stirred Over Soft-Coal Situation — Conferences Are Called — Hard-Coal Outlook Is Far from Bright.

Bituminous—A series of conditions growing out of the various Government priority orders, railroad embargoes and orders, and the general tangle in the movement of service Order 11 coal for New England, have stirred coal men, shipping men and business men here deeply. The trade organizations are now involved and a series of conferences are planned for this week in an effort to straighten out the tangle.

A demand may be made for reversal of the order of railroads against bunkering ships at the coal piers in a move backed by the U. S. Shipping Board to secure a quicker turn-around of vessels here, the port having been officially stamped as the slowest on the Atlantic seaboard in this respect.

Another demand is likely to be made by merchants on the Interstate Commerce Commission for reversal of the New England priority. This order is considered to be a discrimination against business generally on the eastern seaboard (except in the Northeast), as New England, acting under the Government priority movement, is holding out for coal in the spot market for not more than $5 a net ton at the mines. On the other hand Baltimore and other industrial centers east are paying as high as $10@$14 a net ton f.o.b. mines for the same coal in the open market, because its supply is restricted to a certain zone and it is not protected by a priority order.

Business men are deeply stirred by the fact that as high as $17@$18 a gross ton have been paid at the piers here for the same coal which New England purchasing agents, now in this section, declare they are instructed to pay no more than $5 for on a net mine basis.

Meanwhile, despite railroad embargoes and priority orders, considerable coal is still going over the piers into ships in the export trade. Furthermore the Shipping Board is insisting that vessels be allowed to bunker at piers instead of in midstream at additional cost and loss of time in turn-around, and it suddenly orders all its ships out of the export coal trade, because of the drop in ocean freights that followed severe congestion of vessels at loading points.

The export figures for July, despite the many shipping delays, were healthy, as 73 vessels took away a total of 398,437 tons, with 39,907 tons additional taken for bunker use.

Anthracite—The hard-coal situation here is anything but encouraging. Some coal is now coming in, but it is all on the July orders, and no August coal has shown up at this writing. The prospect of $15, or even near $16 coal after freight and wage increases this fall, is disquieting to both the trade and those consumers as yet not supplied.

Lake

CLEVELAND

Stimulation of Order 10 Reflected in Increasing Lake Shipments—Fear of Coal Shortage Still Exists—Spot Coal Grows More Scarce — Prices Are Increasing.

Bituminous—With increasing priority shipments to the Northwest supplies of available coal for commercial uses in this district appear to be dwindling correspondingly. Developments of the last few days, however, have encouraged a more confident feeling among operators. Car placement in the No. 8 district averaged 78 per cent daily for the first four days of this week. Last week the average was 54 per cent, two weeks ago it was 55 per cent and three weeks ago it was 61 per cent.

The improvement is described by operators as being significant, but of too short duration to be dependable. It is pointed out that during the period following the settlement of the coal strike late last year and the middle of June the average weekly placement of cars at mines in the No. 8 district was only 54 per cent. The improvement this week is believed to reflect increased efficiency of railroad employees and better movement of cars into the coal trade under the influence of priority orders.

The Chamber of Commerce is still attempting to have the Interstate Commerce Commission modify Order 10. No response has been received from the commission as yet. Industrial users are still restless regarding the outlook but efforts to acquire substantial stocks even by bidding $10 a ton or more for mine-run slack are meeting with little success because of the lack of coal.

Pocahontas and Anthracite—Receipts of Pocahontas are reported by dealers to be showing no improvement and the retail trade is much disturbed over the outlook. No appreciable change has taken place in the anthracite market, receipts of which continue at somewhat better rate than other grades of coal.

Lake Trade—For the first time this season the objective of 4,000 cars daily at Lake ports was reached and exceeded when on Monday of this week 4,700 cars were handled. Reports of the Ore & Coal Exchange show that steady and substantial improvement is being made in shipments.

The shipments this week are running at the average rate of 3,333 cars daily, or a total for the week of 20,000 cars.

Last week shipments totaled 19,500 an average of 3,250 daily, while the week before the total movement was 18,500, an average daily rate of 3,080. For the last three weeks the average of daily shipments has been 3,222, or 14 per cent under the 4,000 cars fixed by the Interstate Commerce Commission. Indications are that by next week the coveted level may be maintained.

Retail prices of coal per net ton delivered in Cleveland are:

Anthracite—Egg and grate, $13.50; chestnut and stove, $13.75.

Pocahontas—Shoveled lump, $11.75; mine-run $10.50.

Domestic Bituminous—West Virginia splint, $11; No. 8, $10@$10.50; Millfield lump, $13.50; Cannel lump, $14.50.

Steam coal—No. 6 and No. 8 slack, $10@$11; No. 6 and No. 8 mine-run, $10@$11; No. 8 ¾-in. lump, $10.50@$11.

MILWAUKEE

Apathy Rules the Coal Market—Lake Receipts Are Slow—Stocks Absorbed as Fast as They Are Received.

Apathy and resignation, born of utter helplessness, rule this coal market. There has been no perceptible increase in Lake receipts since the recent priority order in favor of such shipments was issued, but a better movement is expected daily. Receipts by rail continue slow. Small dealers complain that their coal allotment from the docks is hardly sufficient to enable them to assure their patrons, who are becoming more and more concerned over their fuel supply. In the first ten days in August a dozen cargoes of soft coal reached port, including some Pocahontas. Seven loads of anthracite have come in during the same period. Lake receipts thus far this season foot up 425,907 tons of anthracite and 690,688 tons of soft coal, against 461,372 tons of the former and 1,895,929 tons of the latter during the same period last year.

BUFFALO

Bituminous Prices Slackening—Cars Are More Plentiful—Anthracite Moving More Slowly—Lake Shipments Increase.

Bituminous—The trade is quiet, jobbers apparently waiting to get a supply after the new freight rates come in, anticipating lower prices in the meantime. For some time the demand has been lessening, which some shippers say is merely the lull before the fall trade sets in.

Jobbers say they can secure coal for about $8.50 net at the mines, while quotations from Pittsburgh range to $12.

Complaints from operators who are not able to keep their men continue. Many of the mines are actually receiving on contract less money per ton than the wildcat mines are paying for their labor. This state of affairs will last till prices drop considerably further than they have yet. As a rule, contracts at low prices are only about half filled.

Anthracite—Supply is very low and if labor difficulties continue the situation will be serious. Shippers with several mines idle are very uneasy but they cannot pay the wages demanded and so wait developments. Locally the complaint of no coal to distribute is common. Canadian dealers continue active in their efforts to secure tonnage.

Lake shipments increased 25,000 tons over the previous week.

The week's shipment was 119,220 net tons, of which 60,520 tons cleared for Duluth and Superior, 21,200 tons for Chicago, 16,000 tons for Milwaukee, 7,800 tons for Port Arthur, 6,400 tons for Fort William, 6,000 tons for Racine and 1,300 tons for the Soo.

Coke—The market is high, though not active, most furnaces having a good contracted supply. Prices remain strong, $18@$20 for the highest grades.

Inland West

DETROIT

Coal Hoarding Is Denied by Industries — Authority To Supervise State Shipments To Be Asked — Anthracite Stocks Are Low — Lake Tonnage Bounds Under Priority.

Bituminous—Charges by members of Michigan's recently appointed coal committee that large Detroit industrial plants are contributing to create unduly high prices for coal by hoarding unnecessarily large reserve stocks, are met with denial by officers of a number of the leading manufacturing establishments.

To date the state committee has apparently made little progress in increasing the supply of coal available. It has been decided to send a delegation to Washington to ask President Wilson to designate the state committee as Fuel Administrator for Michigan, conferring on it authority to supervise reconsignments of coal, confiscations and general supervision over distribution in the state. An attempt will be made to obtain from the Interstate Commerce Commission an order directing preferential shipments of coal to Michigan for about 10 days, after termination of the order increasing Lake shipments to the Northwest.

Anthracite—Very little anthracite is to be found in the yards of Detroit retailers. Shipments are not arriving very freely and household consumers are waiting anxiously for the delivery of old orders. Predictions are being made that anthracite will be selling at $18@$20 a ton in Detroit before winter arrives.

Lake Trade—There has been a substantial increase in volume of shipments to Lakes. On several days recently receipts exceeded 4,000 cars. Additional vessel capacity is sought by shippers.

COLUMBUS

Car Supply Is Somewhat Reduced—Lake Trade Is Increasing Under the Influence of Priorities — Prices Still Remain High.

A better tonnage is going to the Lakes and public utilities are taking a large percentage of what is left. Little coal is moving in commercial channels. Reduced car supply is reported from most of the producing fields of the state. Railroads are taking a large tonnage at present. Steam plant stocks are short and some have been compelled to close down. Others are securing a supply of coal on day to day basis.

The domestic trade is slightly better as dealers are securing a larger tonnage to take care of urgent orders. Retail prices continue high and show a wide range. Hocking lump retails $8.50 @$9.50, while Pomeroy Bend lump is about 25c. higher. West Virginia splints sell in the neighborhood of $10 @$10.50. Pocahontas retails for $11@$11.50.

The Lake trade is showing up better. The priority order is now having its effect but with it has come some congestion which is hindering the free movement of Lake coal. At the Toledo docks loadings have been increased fully 65 per cent over the earlier records of the season and this same increase is shown at other docks.

Prices at the mines of the principal coals used in central Ohio are:

Hocking lump	$5.50@$7.50
Hocking mine-run	5.50@ 7.50
Hocking screenings	5.00@ 7.25
Pomeroy lump	6.00@ 9.00
Pomeroy mine-run	6.00@ 8.50
Pomeroy screenings	5.75@ 8.50
West Virginia splints, lump	7.50@ 9.50
West Virginia mine-run	7.50@ 8.75
West Virginia screenings	7.00@ 8.50
Pocahontas lump	8.00@ 9.50
Pocahontas mine-run	8.00@ 9.25

ST. LOUIS

Conditions Show Considerable Improvement — Outlook Is Extremely Good — Prices Remain Firm — Miners Have Returned to Work.

The St. Louis situation has improved considerably in the last week. There is at the present time a sufficient supply of coal coming in to take care of requirements.

Mines in the Standard field are shipping the greater part of their tonnage to Chicago, northern and eastern markets where prices are better. Car supply in much improved.

Coal coming into St. Louis, sells from $3.50@$6, which is top for Standard coal. The Chicago market is about $7 on coal from this field. Very little coal is coming from the Carterville field and prices range from $6@$8. A few operators are maintaining their circular prices and taking care of some of their customers.

All striking miners have gone back and conditions as far as production is concerned look extremely good if the car supply and transportation hold up.

In St. Louis no anthracite is coming in, nothing from Arkansas and no smokeless, and the coke production continues to decrease.

INDIANAPOLIS

Demand Is Strong from Industries, Utilities and Railroads, but Householders Delay Ordering Coal.

Demand for Indiana coal continues to be the predominating feature of the market. However, there is a noticeable tendency on the part of the private individual to postpone his buying for home use. The demand from industries, public utilities and railroads continues with unabated vigor and is out of all proportion to the visible supply. Coal operators declare that it is impossible to supply the demand with the present car service. Railroads are continuing to confiscate coal almost as fast as operators can find cars to put it in.

Wholesale dealers say there is hardly any demand from the retailer and that most of their trade is with the industries. Free coal is bringing from $7@$7.50 a ton for steam purposes. However, it is seldom that a car can be found and relief must be had shortly or the entire section will freeze during the winter.

Retailers are advising the general public not to purchase coal at the present time. They say coal will be more plentiful as the fall season approaches, because they look for some relief in the transportation problem. Operators declare that if they were given 100 per cent car supply, they would be able to break the present market within 30 days.

CHICAGO

Purchasers Are Refusing To Buy at High Prices—Demand Is Slackening—Buyers Await Contract Shipments.

Since resumption of work, on the part of the strikers at the Illinois and Indiana mines, there has been a decided tendency on the part of the public to keep out of the market and await developments. Several of the bigger buyers of steam coal in the Chicago market have made no purchases for the last few days. A price of $5.25 per ton is all that representative buyers are offering for steam coal, either screenings or mine run, and for the time being are refusing to purchase, except at that figure. Sellers are demanding from $6.25@$7.25, f.o.b. mines, for spot shipments and are having little difficulty in getting their price. The buyers of domestic coal are not quite as anxious as heretofore to purchase spot coal. They are showing a decided tendency to rely on their regular connections and wait until coal is shipped to them on contract.

MIDWEST REVIEW

Market and Labor Conditions Greatly Improved — Prices Steadier at Lower Levels — Production Is Increased Materially.

Since last Monday there has been a decided change for the better, both in regard to healthy market conditions and from the stand point of operation of the mines. Coal is now to be had in larger quantities than heretofore and consequently at prices nearer to normal. The activity on the part of the buying public still continues, but there is some slight letup noticeable. It must be understood, however, that there is no weakening in the market.

Labor conditions in the mining fields are now fairly satisfactory. It is said that West Frankfort was the last district to go back to work in a normal manner, but this is explained by the severe riots that this town has been experiencing during the past week. Outside of West Frankfort, labor conditions both in the Illinois and Indiana producing districts, are reported as satisfactory and no further strikes are looked for.

As was expected, the car supply this week has been excellent. Mines have been able to run about 80 per cent, so far this week; however, it is not thought that the railroads will be able to keep up their car supply on this basis during the next three or four weeks. It has been a decided advantage to the trade to have had plenty of cars at the mines this week, as it tended very strongly to ease the market and put an end to a buying panic that was well under way.

There are certain communities in the Middlewest and Northwest that are still in dire need of coal, but taken all in all, the situation is better and the outlook brighter than it has been for some time. Provided the railroads are in a position to supply the mines with the same proportion of cars as furnished before the strike, the market will continue in a fairly satisfactory way with prices at about the same levels as before the strike.

South

LOUISVILLE

Prices Are Higher and Demand Good —Export Quotations Lead — Field Affected by Various Local Strikes.

Prices have advanced due to heavy demand and are now much higher than ever before known. Eastern Kentucky reports good movement to the Lakes and Northwest. There is a good export demand, although some tonnage has been checked by embargoes, especially through Norfolk. It is reported that export buyers have been offering $12.50@$14 a ton for gas coal.

There is a demand developing for western Kentucky coal for export through New Orleans. Some western Kentucky coals are fairly free of sulphur, and were exported successfully two years ago.

Eastern Kentucky is having severe labor troubles. The western Kentucky operators are a bit worried, labor having become disgruntled as a result of the troubles in Illinois and Indiana.

Several suits have been filed by jobbers during the past week, protesting the operators' failure to supply coal on contracts. Steam grades are extremely scarce and retailers' stocks are depleted.

Car supply shows very little improvement. The Louisville & Nashville R.R. contends that it is supplying a larger amount of equipment but that shortage is largely due to increase in number of mines and size of operations served.

Eastern Kentucky quotations on gas mine run $10@$10.50; steam $9.50@$9.75. Western Kentucky lump average $5@5.50; mine-run and screenings $4.75@$5.

BIRMINGHAM

Car Shortage Blocks Increased Production — Labor Conditions Show Steady Improvement — Market Is Strong and Active, but Little Coal Is Offered.

An acute shortage of equipment has developed on the Southern Railway, resulting in loss of time and tonnage at mines. Much Southern Ry. equipment has been withdrawn from this section and sent to other coal fields on the lines of the system or its connections. Other lines are furnishing cars on about the same basis as has existed for the past several weeks.

Market conditions have undergone practically no change since last report. Demands are as keen as ever, while production has not yet approached figures which will make coal available in excess of contract and booked requirements. Movement of coal is slow and irregular and not in sufficient volume to allow any stock accumulation by coal-consuming interests.

Conditions in sections affected by strikes are showing satisfactory improvement. Mines which have mostly been affected by labor troubles report greatly increased working forces and better production.

Canada

TORONTO

Bituminous Situation Is Unchanged—Anthracite Supply Is Fair, With No Shortage Expected for Winter.

There is no improvement in the situation as regards bituminous coal and it is rapidly becoming serious. Recent shipments show considerable loss of tonnage. Industries are much depressed, throwing many men out of employment. Anthracite supply is fairly satisfactory and dealers are gradually cleaning up delinquent orders, taking new business at prices at time of delivery. No serious anthracite shortage is anticipated for the winter.

The Canadian Railway Commission is now hearing the application of the railroads for an increase, which is practically certain to be granted.

Quotations per net ton are as follows:

Retail:	
Anthracite egg, stove, nut and grate.	$15.50
Pea	14.00
Bituminous steam	$15.00 to 16.00
Domestic lump	18.00
Cannel	16.00
Wholesale f.o.b. cars at destination:	
Three-quarter lump	$14.00 to 16.00

News From the Coal Fields

Northern Appalachian

UNIONTOWN

Car Supply Affects Prices, as Recently Illustrated — New 24-Hr. Demurrage Will Improve Quality of Coal Shipments.

The contention of responsible operators that the acute car shortage is responsible for the high market apparently has been borne out by the fact. A record car placement for two weeks, in many instances approaching requirements, has brought quite a decided break in the market which at this writing is yet uncertain. It is in such a condition that it will be immediately responsive to a turn either way in the car supply.

There is the possibility ever present, however, that railroad motive power will not be equal to a normal car placement, but to date the railroads have been able to move all the freight offered.

Monongahela R.R. car placements this week approximated requirements for the first time since April. In several instances more cars were placed than could be loaded. For the week that line placed 88 per cent coal cars and 90 per cent coke cars, being 2,982 and 2,115, respectively. The placement for the other roads serving the territory was not so good but was much better than has heretofore prevailed.

Coke prices are much in sympathy with the sliding market, and while quotations yet remain stationary there is every indication that a downward trend will shortly make its appearance. Spot offerings are increasing but the trade has been able to absorb all tonnage, as yet at a high figure.

The new 24-hr. demurrage ruling will have a decided bearing on improving the quality of coal shipments. With the market sliding, operators can ill afford to run the risk of having a shipment refused at destination because of quality.

CONNELLSVILLE

Decided Improvement in Car Supply Is Due to Better Movement—Prices Not Quotably Lower, but Market Shows Easier Tone.

Car supplies in the Connellsville region underwent a distinct increase Monday, Aug. 1, and the increased supply has continued to date, with correspondingly heavier production. The better placements are attributable to cars moving less slowly rather than to any additional cars being put into the coke service. In the past few weeks there has been testimony by several furnace interests, of their having to have more than twice as much coke en route, in order to maintain required receipts.

The market has not responded to any extent thus far to the heavier production, but it shows a slightly easier tone. It is related that some consumers who have been free buyers of late have decided to stay out of the market in anticipation of lower prices. Offerings of foundry coke have become distinctly more numerous, but there is no really perceptible change in furnace-coke offerings. The spot market is unchanged: furnace, $17.75@$18.50; foundry, $19@$19.50, per net ton at ovens. It should be noted that for particular quality some consumers have paid $20 and even more.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended Aug. 7 at 194,140 tons, an increase of 21,270 tons over that of the preceding week, and a gain of 10,000 to 15,000 tons over the average for the last two months.

PITTSBURGH

Lake Shipments Are Increasing—Labor Situation Is Unsatisfactory—Some Consumers Predict Lower Prices, but Same Are Holding Firm.

The Lake priority order is being complied with fairly well by the Pittsburgh district. In some quarters it is predicted that a continuance of these shipments will cause a shortage for the line trade. There is little doubt but that the Lake movement will increase the total movement of coal from Pittsburgh district mines by the cars making a greater number of round trips when in Lake service than when engaged in miscellaneous coal service.

There are more cases of plants that are important consumers of coal closing for a combination of reasons, the high cost of coal, the difficulty in moving their finished products and uncertainty as to the future of their markets.

At this writing a meeting is being held in Cleveland on wage matters. Pittsburgh district coal operators have no disposition to give the day men an increase in wages over the recent award, and in some circles it is thought far from impossible that a strike will be attempted.

Car supply continues to improve and while supplies remain far below mine ratings, cases are now becoming frequent of men not working full enough time to load all the cars provided each day. The condition is by no means general, but the cases are not insignificant.

The spot market remains about the same as for several weeks past, quotable at $10@$12 per net ton at mine, Pittsburgh district, there being quite a range on account of quality. Good gas and byproduct generally bring $11 or more. In the past few days a little falling off in demand has been noticed, while several consumers have made definite predictions that there will be a drop in the market very shortly. If they carry out their view by refraining from buying, some price developments may occur within a week or so.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL.

	1920		1919(a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
July 24	10,470,000	293,369,000	9,988,000	248,201,000
Daily average	1,745,000	1,630,000	1,665,000	1,422,000
July 31b	9,366,000	302,735,000	9,943,000	258,144,000
Daily average	1,561,000	1,676,000	1,657,000	1,429,000
August 7c	0,334,000	313,069,000	9,359,000	267,503,000
Daily average	1,722,000	1,678,000	1,560,000	1,434,000

ANTHRACITE

	1920		1919(a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
July 24	1,770,000	48,701,000	1,803,000	45,496,000
July 31b	1,860,000	50,561,000	1,812,000	49,309,000
Aug. 2c	1,757,000	52,318,000	1,870,000	49,177,000

BEEHIVE COKE

United States Total

Week Ended				
Aug. 7 1920c	July 31 1920b	Aug. 9 1919	1920 to Date	1919 to Date a
409,000	395,000	389,000	12,819,000	11,579,000

(a) Less one day's production during New Year's week to equalize number of days covered for the two years. (b) Revised from last report. (c) Subject to revision.

FAIRMONT

Production Is Best of Year — New England and Lake Shipments Are Heavy, Also to Railroads — Prices Remain Firm.

Production has been greater in northern West Virginia during the first week of August than at any time in the present calendar year. Percentage of supply has probably not been materially increased, since mine rating has been increased to cover shipments to New England and the Lakes. Mines on the Monongahela R.R. fared very well, though about a third of the supply was assigned, running over 100 cars a day. All previous loadings in the history of the Morgantown & Wheeling R.R., which serves the Scott's Run field were eclipsed in the week ending the 7th, owing to a splendid run of cars on that road.

Large quantities of New England coal began moving on Aug. 2. The tonnage allocated to Fairmont field mines was 115 cars a day.

During the early part of the week prices showed a tendency to soften, particularly as to the Lakes and New England, yet after the middle of the week prices rallied and were about on the same level with the previous week.

NORTHERN PAN HANDLE

Car Supply Here Hardly Enabled Mines To Furnish Lake Quota— Eastern Ohio Mines Were Similarly Situated.

While transportation conditions in other parts of the state were conducive to larger loadings such was not the case during the first week of August. There was no change for the better during the first week of August in the general situation in the northern Pan Handle. Indeed, the car supply was hardly more than sufficient to enable mines to take care of their Lake quota of coal under Service Order 10. By the time Lake requirements had been met, there was nothing left for commercial shipment. There seemed to be no reasonable excuse for a shortage of equipment in a field reached by so many railroads.

Eastern Ohio mines were similarly situated, however, it was estimated that only about eight per cent of production was available for industrial and domestic use. As a result of the diversion of so large a part of the allotment of Pan Handle and eastern Ohio mines to the Lakes, industrial concerns faced a scarcity of fuel for operating purposes. There seemed to be little hope of any improvement in transportation facilities, the railroads being unable to promise much relief.

Middle Appalachian

VIRGINIA

Production Increases Slightly — Inland Markets Get More Coal—Coal Moving Heavily on Priority Orders.

Production for the first week of August was 190,000 tons, an increase of about 3 per cent. The average car supply for mines on all five railroads serving the field was 83 per cent.

Embargoes on exports are tending to make more coal available for Inland markets, allaying somewhat the apprehension existing among Virginia consumers. Despite the increased production, the amount of free coal available was greatly restricted as priorities, contracts, railroad requirements and public utilities were taking virtually the entire output of Virginia mines.

LOGAN AND THACKER

Production Makes Marked Gain in Both High-Volatile Fields — Car Supply Improves in Logan and Number of Mines Resume in Thacker Field.

Strides were made forward in production in both the high-volatile fields on the Chesapeake & Ohio and on the Norfolk & Western though from different causes. A marked gain was made in the Logan output through a further improvement in the car supply in the week ended Aug. 7. As the United Mine Workers lost ground in the Thacker field, the mines gained in the amount of coal mined, though the strike was a serious factor in retarding the production of a large tonnage in that field. The car supply was so much better that the necessity of shipping to the Lakes was not working a hardship as it had done during the last week of July.

The week ended Aug. 7 in the Logan field was the banner week of the year, the mines producing approximately 240,000 tons of coal, representing about 55 per cent of capacity. However, the unusually large number of cars on hand during the second week of August was a result of the suspension of activities at Illinois and Indiana mines during the latter part of July.

Of the total production of Guyan mines in the period ended Aug. 7, fully 75,000 tons were shipped to the Lakes. Eastern shipments were increased somewhat owing to the larger production and because no Tidewater embargoes were in effect.

The resumption of mining took place at some nine different operations in the Williamson field during the first week in August. It was not believed that more than 1,800 miners in all were still affiliated with the union.

POCAHONTAS AND TUG RIVER

Pocahontas Gradually Eliminates Losses From All Causes, Output Closely Approaching a Maximum — Larger Part of Production Moves Eastward — Big Percentage of Tug River Output Goes to New England.

Labor shortages in the smokeless fields on the Norfolk & Western at the beginning of August presented more of a problem than any other phase of mining in the effort of producers to reach maximum output, but during the week ended Aug. 7, operators were gradually overcoming such a shortage. That was an indication of an improvement in the labor situation in the adjoining Thacker field. During the early part of August Norfolk & Western mines received a full car supply.

Losses from all causes were gradually eliminated in the Pocahontas field, however labor shortage was still the largest source of loss.

The shipment of a large tonnage of coal to New England from Pocahontas points was mandatory under Service Order 11; however, there was a heavy demand at Tidewater as well as at Inland East points, and the larger part of the Pocahontas production was moving eastward.

Tug River producers find themselves seriously handicapped in trying to raise production over 85,000 tons a week by their inability to secure results from the miners. Labor simply will not bestir itself. However, as labor conditions are better in the Thacker field, there is also an improvement observable in the Tug River section.

Cars were plentiful in the region during the period in question with no signs that there would be any decrease in the supply. The output for the first week of August totaled about 86,000 tons.

As seven per cent of the field was consigned to the Northwest, and as there was also a large percentage of production moved eastward for New England delivery, little more coal was available for general distribution than had been the case previous to the increase in transportation facilities.

NORTHEAST KENTUCKY

Production Increases 14 Per Cent— Tidewater Shipments Heavier — Lake Requirements Are Met — Prices Are Firm With Byproduct Coal in Demand.

Production increased 14 per cent in the first week of August, reaching 144,720 tons, or 58 per cent of potential capacity. Labor shortage and mine disability losses amounted to 5 per cent or 13,000 tons, an increase of 3 per cent in a week.

Tonnage for Lakes was increased to the extent of more than 160 cars, there being shipped in all 623 cars. Not only was Lake tonnage increased, but Tidewater coal was also speeded up, movement to the coast being doubled for the first week of August. Embargoes during part of the time, however, tended to check tidewater shipments.

Mines were generally able to meet Lake requirements. The additional car supply also enabled mines to more nearly take care of commercial orders. However, there was no diminution of demand; gas and by-product coal being in particularly strong demand.

NEW RIVER AND THE GULF

Production Is Much Increased, Due to Good Car Supply—New Rolling Stock Facilitates Car Movements — Export Shipments Heavy — Prices Remain Firm.

In both the Winding Gulf and New River fields the car supply is undergoing improvement and operators hope that perhaps the improvement is perma-

nent. The betterment in transportation facilities comes just in time to enable shippers to take care of the large quotas assigned them for loading to New England and Lakes. Shipping so heavily on priorities has created a scarcity of coal at tide. Prices remain firm with perhaps an upward tendency.

With six hundred cars available on Aug. 2, New River mines were able to produce about 30,000 tons on that date, production dropping through the week to 17,000 tons on Aug. 7. On Monday, August 9, there was more than a 100 per cent supply available for New River mines, the number of cars on hand that date being in excess of 1,000.

Impetus has been given to coal production in the Winding Gulf district not only through increased car supply but also because of equipment being added to the rolling stock of the Virginian Ry. New trains are being added at the rate of three a week on the Virginian and during the week ending August 7 mines were able to secure almost a full week's supply of cars, production being at the rate of 80 or 85 per cent.

KANAWHA

Production Is Greatly Increased—Freight Congestion Temporarily Hampers Mines — Outlook for Cars Is Good — Priority Loadings Progress Satisfactorily.

The percentage of car supply was little better than during the final week of July. That is accounted for because of the necessity to increase the allotment of C. & O. mines to meet the additional demand for priority shipments to New England and the Lakes. The supply at the opening of the week was perhaps 85 per cent, but toward the end of that period it had declined to about 40 per cent. Mines were seriously handicapped during both the first and second weeks of the month by inabilty of the Toledo & Ohio Central R.R., connecting with the Kanawha & Michigan R.R. to handle loads or empties, owing to freight congestion. When the second week of the month opened, however, there were more than a thousand cars available for loading, about 112 per cent of allotment. The increase was said to be due to the sudden influx of cars formerly used in the Illinois and Indiana fields.

Mines were able to make Lake shipments without causing a shortage elsewhere, as had been the case the week before. It was generally understood that some buyers were offering as high as $18 and $20 a ton for export coal. Most producers were fighting shy of such prices.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Miners Strike Against Wage Scale—Many Operators Are Refusing To Abide by Knoxville or Jellico Agreement—Labor Is Going to the Highest Bidder.

Mines in this section are in a chaotic state, due to the varied wages being paid by mine operators. The large operators in the Straight Creek field called a recent meeting to enlist the aid of all operators on both forks of Straight Creek in conforming to a uniform wage and to abide by the Knoxville agreement. Union officials were in attendance and in order to push their cause for recognition took up the plea, advising all operators to sign the Knoxville or Jellico agreement. They favored the latter as it carries recognition of the union. A number of the operators consented to this with the result that their mines promptly closed, miners going over to those who refused to abide by the agreement. Consequently, labor in this field is now going to the highest bidder.

Middle Western

INDIANA

Indiana Operators Ask I. C. C. To Regulate Traffic on Pennsylvania R.R.—Reports Show That Other Roads Provide Good Car Service.

Telegram after telegram is being sent to members of the Interstate Commerce Commission by coal operators of Indiana, who have mines located on the Pennsylvania R.R., asking that the commission take some steps to regulate traffic on that road, in order that they may get better service. They point to the number of mines closed down during the past two weeks and show a high percentage of these mines located on the Pennsylvania R.R.

Statistics show, according to the operators, that on Aug. 7 nine of the ten mines closed down in the state, because of car shortage, were on the Pennsylvania R.R.; that on Aug. 9 five, or all of the mines down, were on that road; that on Aug. 10 some 16 out of 20 were Pennsylvania road mines, and on Aug. 11 some 17 mines down, out of 39, were on the same road.

A slump occurred in the Indiana field, due entirely to car shortage, in the opinion of the operators. They point as proof to the fact that during the first three days, following the resumption of work on Aug. 1, the mines worked nearly 100 per cent, but a drop was shown after the supply of cars was exhausted, so that the week's average was only about 50 per cent. The second week cut this average in half.

Western

NORTH DAKOTA

Utility Companies Are Asking Permission To Increase Gas, Electric and Steam Rates in the State

The coal shortage facing the Northwest and the increased freight rates are expected to result in many petitions for the increase in rates by utility companies in the state of North Dakota.

The Red River Valley Power Co., of Grand Forks, represented to the Railroad Commission, in its plea for authority to make surcharges on gas, electric, and steam rates, that the increased cost of coal in the next ten months will be 25 to 60 per cent. The same position is taken by the Union Light, Heat & Power Co., of Fargo, and the Northern States Power Co., of Minot, in asking for authority to make increases. The Railroad Commission set Aug. 16 as the date for the hearings.

UTAH

Circular Announces Prices and Shows Upward Trend—Other Companies Are Expected to Follow.

Coal is once more on the upward trend. The Lion Coal Co., of Ogden, Utah, is announcing by circular that at its Wattis mines in Utah, and at the Rock Springs mines, lump coal will be $5 per ton at the mine; $4.50 for nut or egg; mine-run, $4; slack, $2.50. It is stated that this move is due to the prevailing general prices.

It is expected that one or two operating companies in Salt Lake City will follow the lead of the Ogden concern, and the belief is current that while there is as yet no general concerted action in the direction of raising prices it will be but a short time before all the companies do the same. This will make it necessary for the retailers to add 50c. per ton to their present prices. The new schedule will, therefore, be as follows: Lump coal, $10; nut, $9.50.

Canada

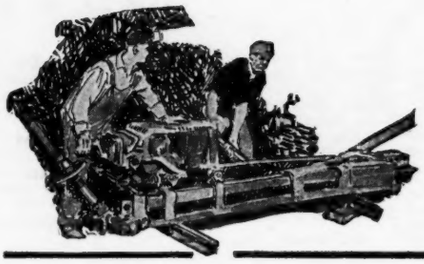
BRITISH COLUMBIA

Fatalities in Mines Here Increase in 1920 Over Same Period in 1919—Distribution and Causes of Fatalities Are Noted.

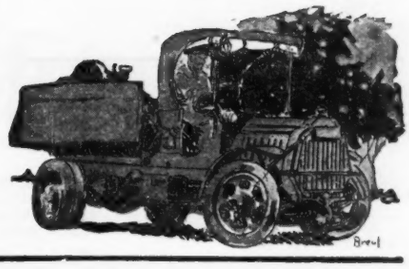
Victoria—The last quarterly report of the Chief Inspector of Mines for British Columbia shows that fatalities in the coal and metalliferous mines over that period totalled five—four in coal mines and one in the metal mines. In the corresponding period last year fatalities were two in coal mines and one in the metalliferous mines.

For the first six months of the year, coal-mine fatalities numbered eight, compared with two in the same period last year, and in the metal mines one as compared with a like number in 1919. Coal-mine fatalities up to June 30 were distributed as follows: Two in the mines of the Canadian Western Fuel Co., at Nanaimo; two in the coal Creek mines of the Crow's Nest Pass Coal Co.; one in the Reserve mine of the Canadian Western Fuel Co.; and one in each of the mines of the Crow's Nest Pass Coal Co. at Michel, No. 4 and No. 6 mines of the Canadian Collieries, Ltd.

Four miners were killed by falls of rocks, two by falls of coal, one by mine cars and one by falling material in a shaft. The single fatality in metal mines occurred at the Nickel Plate Mine, Hedley district.



Mine and Company News



ILLINOIS

Du Quoin—The Bell & Zoller Mining Co. has recently completed the sinking of a material shaft at Mine No. 1 near Zeigler. Sinking has been going on for some time and when this new shaft is in operation it should greatly increase the output of the mine, as no time will be taken up at the main shaft for letting down supplies, etc.

Blairsville—The Madison Coal Corporation has located a site for sinking their new mine here. Plans call for one of the largest and most modern collieries in the field and as soon as the switch is completed, material and equipment will be rushed to the site and the mine sunk. The plans also include the erection of 25 houses near the mine site and later on for the erection of 75 more.

Colp—A new five-track, steel tipple is now being erected by the Franklin County Mining Co. at Franco mine No. 2, at Colp, Williamson County, to take care of its recently increased tonnage. The Link-Belt Co. of Chicago. is installing the shaker screens and picking tables and the construction work is being done by the Wisconsin Bridge & Iron Co.

OHIO

Columbus—The Puritan Coal Co. of Chicago, which has been doing a general jobbing business for twelve years has been reorganized with A. H. Kuhns, formerly salesmanager of the Peacock Coal Co. of Columbus, as vice president and manager. Headquarters are located in the Huntington Bank Bldg. C. L. McGraw is president, R. L. France, secretary, and H. B. Kuhns is treasurer.

PENNSYLVANIA

New Geneva—The Atlantic Coal Co., operating a mine in New Geneva, has been returned to its owners by order of court, discharging Receivers T. J. McClernan and D. J. Murphy. Mr. McClernan has purchased a controlling interest in the company and has assumed its obligations. The company was brought out of its financial difficulties largely by the present coal market actitvities.

Uniontown—The Superior Connellsville Coal Co. has purchased 184 acres of the Pittsburg vein in Luzerne township from Newell A. Porter and James West. The property adjoins the present holdings of the company which were recently purchased by George Whyel, of Uniontown.

Hauto—The Lehigh Coal & Navigation Co., Cranberry Creek Coal Co., Harwood Coal Co. and the Alliance Coal Mining Co. will hold their annual outing and first-aid contest Aug. 21, 1920 at Greenwood Park, Hauto, Pa. Special train leaves Broad Street, Tamaqua at 8 a.m., stopping at Seek and Coaldale. Train leaves Lansford for Greenwood Park at 8: 30 a.m.

Washington—Renewed hope for the early completion of the Chartiers Southern R.R. from Van Eman station on the Chartiers branch to Marianna is given by the closing of a deal in Somerset Township, in which the Hillman Coal & Coke Co., of Pittsburgh, purchased approximately 800 acres of coal land along this line, paying $405 an acre for it.

Work on the Chartiers Southern branch to Marianna was started several years ago. The grading was all completed, a tunnel driven, concrete abutments finished and then the building stopped suddenly and no work has since been done.

TENESSEE

Chattanooga—G. F. Meehan, president of the Ross-Meehan Foundry Co., has been named president of the Signal Mountain Coal Co., recently formed here with a capital of $2,000,000. The concern has taken over the interests of the Suck Creek Coal Co., the Montlake Coal Co., and the Chattanooga & Montlake Railway Company.

WEST VIRGINIA

Bluefield—With a view to leasing a part of the holdings of 10,000 acres on Elk Creek in Logan County, stockholders of the Newberry Coal Land Co. held a meeting here the last of June with prospective lessees, among whom were A. J. King, of Huntington, Secretary Galloway of the King Fuel Co. and W. R. Lilly, of Logan, of the Elk Creek Coal & Coke Co.

War—The Oriental Navigation Co., of New York, has purchased the Williams Pocahontas Coal Co. It is understood that the price paid was in the neighborhood of $400,000. The product of the company purchased will be used in bunkering the steamship company's boats. The Williams Pocahontas Co. ranks as one of the largest on Dry Fork in McDowell County. Control of the company was held by Frank Truscott, of War, W. Va.

Welch—Paul N. Bogart, of Terre Haute, Ind., and others, have organized the By-Products Co. with a capitalization of $250,000. The company does not expect to operate a byproduct plant as its name might imply, but will operate mines working in the Pocahontas No. 3 and No. 4 seams. However, the coal is said to be well adapted for byproduct purposes, the name of the company being chosen for that reason. Officers and directors have not so far been elected. Among those active in organizing the company were: Paul N. Bogart, Warren S. Blauvelt, James S. Raysey and Leon Stern, all of Terre Haute, Ind.; Thomas D. Sheerin and Elmer W. Stout, both of Indianapolis.

WYOMING

Kemmerer—Recently an explosion of a powder magazine at Sublet No. 6 mine of the Kemmerer Coal Co. resulted in eight men losing their lives. The cause of the explosion is a mystery, according to officials of the company, but it is thought that the powder man (who is among the dead) lighted a match while in the magazine. Of the other seven men present at the time of the explosion, some had stopped on their way to work while others had just come off a shift.

CANADA

Sydney, N. S.—A definite plan for the development of the coal properties of the Dominion Steel Corporation has been decided upon by President Roy M. Wolvin, after a tour of inspection.

In addition to extensive development of the Cape Breton properties, involving a probable expenditure of $4,000,000, it has been definitely decided to immediately reopen No. 3 Slope at Springfield, which has not been worked for some years. Another slope known as No. 7 has been worked at Springfield and sunk 100 ft. on a 5-ft. coal seam of excellent quality. No. 6 slope will be more extensively developed for an output of eventually 1,000 tons per day. When the improvements at Springfield are made it will be one of the best equipped coal properties in Nov Scotia with four producing pits.

Kamloops, B. C.—Chua Chua coal lands on the North Thompson River, near Kamloops, B. C., have been bonded to the Queen Bess Mining Corporation of Seattle, Wash., approximately $500,000 being involved in the transaction. Glenville A. Collins, who was chairman of the recent international mining convention at Seattle, Wash., was instrumental in putting the deal through. Drilling is to commence at once and it is expected that the first shipments will be made next September.

Montreal, Que.—To relieve shortage in eastern Canada the Dominion Steel Corporation will spend $5,500,000 in developing its Nova Scotia coal properties, it was announced here today.

Trade Catalogs

Locomotive Coal Plants. The Roberts & Schaefer Co., Chicago, Ill. Folder. Pp. 2; 8½ x 11 in.; illustrated. Photo-cuts of some of the recent plants designed and built by this firm.

Use of Stenches as a Warning in Mines. By S. H. Katz, V. C. Allison and W. L. Egy. Department of the Interior. Bureau of Mines. Technical Paper 244. Illustrated; pp. 31; 6 x 9 in. An account of experiments carried on at the Bureau's experimental mine and at commercial plants.

Time-Saving Accessories for Use with Graphic Meters. The Esterline Co., Indianapolis, Ind. Bulletin. Pp. 4; 8½ x 11 in.; illustrated. Description of some of the things the company has done to make Esterline instruments more serviceable.

Hoisting Hints. Yale & Towne Manufacturing Co., Stamford, Conn. Booklet. Pp. 16; 6 x 8½ in.; illustrated. Notes latest machine shop hoisting hints.

Stratton Air Separator. The Griscom-Russell Co., 90 West St., New York City. Bulletin 1111. Pp. 11; 6 x 9 in.; illustrated. A description of the apparatus and partial list of users.

Elevator Controllers. The Cutler-Hammer Manufacturing Co., Milwaukee, Wis. Publication 840. Booklet. Pp. 24; 8½ x 11 in.; illustrated. Illustrates the new controllers and emphasizes their simplicity, quiet operation and smooth acceleration.

Personals

Dewitt Clinton Grove, past vice president of the Technical Publicity Association, has become advertising manager of the Blaw-Knox Co. of Pittsburgh, Pa., manufacturers of "Blawforms" for concrete construction. Mr. Grove succeeds **George Land,** who resigned July 1, to enter the agency field as head of the Technical Publicity Co., of Pittsburgh. Mr. Grove came to the Blaw-Knox Co. from the H. S. Cameron Pump Co., a subsidiary of the Ingersoll-Rand Co., where he was in charge of the advertising department. Previous to that, he handled the advertising of mining machinery and other equipment for the Ingersoll-Rand Co. Another new man in the Blaw-Knox advertising department is **Leo Robin,** a former newspaper editor of Pittsburgh, who in connection with other duties is editing "Blaw-Knox Life," the company's house organ.

T. E. Spence has recently been appointed manager of the new district sales office which the Reading Iron Co. has established in the Compton Building, 161 Devonshire Street, Boston, Mass. After taking his degree as electrical engineer at the University of Colorado, in 1906, Mr. Spence passed several years with the American Gas Co. He then conducted a private engineering practice in Philadelphia. Later he was associated with the Vacuum Oil Co. of New York in a special sales capacity. This position he resigned in order to join the sales staff of the Reading Iron Co. Before entering upon his new duties in the selling field. Mr. Spence spent considerable time gaining a first-hand practical knowledge of the manufacture of pipe by taking an extensive apprenticeship course at Reading.

Edward J. Hackett, president of the E. J. Hackett Coal Co., was elected president of the Louisville Truck Dealers' Association recently. The association has been incorporated under the laws of the State for the purpose of co-operation, establishment of standards of practice and promotion of "good roads."

W. E. Holland, secretary to the vice president of the Lehigh & Wilkes-Barre Coal Co., has heard the call of the suburbs and will move to Long Island early in August. Mr. Holland has purchased a house on Nottingham Road in Malverne. This town is a unique community for better homes two miles south of Garden City and within five miles of Long Beach.

M. G. Sellman has been named as resident manager of the new branch office of the Blair-Parke Coal & Coke Co., a Philadelphia concern in which Fairmont people are to some extent interested.

C. W. Clark, assistant general manager of the Standard Oil properties in Carlinville, Ill., and vicinity, has promoted **Earl W. Anderson** to be assistant electrical engineer at the Schoper power house. This promotion comes after two years of service with the company. The Schoper power house is one of the largest in Illinois.

Thomas F. Kelly, formerly with The Lackawanna Steel Co., has been appointed sales engineer of the Flue Dust, Ore and Byproducts Department of the General Briquetting Co., 25 Broad St., New York

C. F. Huber, of the Lehigh & Wilkes-Barre Coal Co., was in an accident while out riding in an automobile recently. The car turned over and his wife was badly cut, and a Miss Welles of Mississippi, accompanying the party, was so badly injured that she died shortly after the accident.

A. J. King, one of the leading coal operators of the Logan field of West Virginia, who makes his headquarters at Huntington, W. Va., has taken out a life insurance policy for $500,000, naming as beneficiaries the ten companies in which Mr. King is an important factor.

J. H. Brown, of Ashland, Ky., has resigned as assistant State Mine Inspector, effective July 1.

The appointment of **John Macdonald,** of Middlesboro, B. C., and **John G. Biggs,** of Cumberland, B. C., to vacancies on the staff of the Chief Inspector of Mines of the Province of British Columbia is announced by Hon. William Sloan, Minister of Mines. These positions were thrown open, respectively, through the death of **H. Lancaster,** Inspector of Mines in the Fernie district, as a result of an automobile accident, and by the retirement of **George Wilkinson,** former Chief Inspector of Mines, and the promotion to his place of **James McGregor,** the present chief. Mr. Macdonald was 11 years in the different coal fields of Scotland, two years in the State of Illinois, and has been identified with coal mining in the Nicola Valley field, B. C., for the past ten years. Mr. Biggs started coal mining in the Newcastle district, England, as a young man, and for many years has been associated with the business in a practical way. He has been secretary of the Board of Examiners in the Cumberland district for about five years.

Association Activities

Kentucky Retail Coal Dealers' Association

One hundred dealers met at Lexington, Ky., recently to organize the Kentucky Retail Coal Dealers' Association.. W. S. Glore, of Danville, was elected president. The purpose of the association is for mutual benefit, better deliveries and service to the public.

Other officers elected are as follows: Shelby Kinkead, Lexington, vice-president; C. P. Willoughby, Richmond, treasurer; and J. Crow Taylor, Louisville, secretary.

A second meeting was scheduled to be held in Louisville Aug. 10, to bring about a more perfect organization and inaugurate a membership drive.

At the meeting several dealers characterized the present situation as the worst crisis in the history of the country and said they could see no relief.

Industrial News

Plymouth, Pa.—The U. S. Government has forwarded an engraved certificate of merit to Franklin B. Spry, president and general manager of the Howells Mining & Drill Co., accompanied by a letter which gives the following citation of the important part the Howells Company played in the war: "This company willingly did development work gratis and its bids were in some instances 1-5 to 1-6 of its nearest competitors. Its business methods were of a high order and seldom equalled."

The Howells Mining & Drill Co. early in the war converted a large part of its factory at Plymouth for the development and manufacture of drills and entrenching machinery of which the allied nations were in great need. The Spry electric drill was received with enthusiasm by the army authorities and there was a great demand for the machine for tunneling work. These drills and augurs were shipped to France and were distributed from there to all parts of the fighting front.

The patriotic war work performed by the Howells Company was done at a sacrifice for so much of the factory was given over to the manufacture of these machines needed at the front that the company had to suspend a large part of its regular business.

Baltimore, Md.—The Black & Decker Co,. manufacturing electric tools, air compressors and other special machinery, has recently advised jobbers handling its machinery that there will be no reduction in its prices this year. Starting Jan. 1, 1921, jobbers will be protected against loss through price reduction for 60 days after the purchase of the goods.

Obituary

Thomas N. Mordue, a prominent Chicago coal merchant, died on August 3d. Mr. Mordu has been long and favorably known in Middle Western coal circles. Some time back he was Western representative and Chicago manager for Castner, Curran & Bullitt. Later he severed this connection and organized some companies of his own. He was president of the Thomas N. Mordue Coal Company of Chicago, the Mordue Collieries Company of Mordue, West Virginia, and the Jellico Cannel Company of Newcomb, Tennessee.

Philip White, of the Marion Divisional Coal Association, controlled by the Peabody Coal Co., and prominent among coal officials in Southern Illinois, lost his life recently while trying to put out a fire at Mine No. 18 of the West Frankfort Coal Co., at West Frankfort, Ill. Mr. White had started inside with six men. and while on the way he became exhausted from gas which leaked through his helmet. Rescue teams from Du Quoin, Benton and Herrin were unable to bring the unconscious man to fresh air in time to save his life.

Joseph Whitehead, one of the oldest operators in Illinois and the organizer of many large and successful coal companies, died recently at his home in Farmington, Illinois.

John Calvin Skinner, prominnt retail coal dealer of Plano, Texas, for a number of years, died recently at a sanitarium.

Recent Patents

Coal Separator. William M. MacFarlane, Scranton, Pa., 1,345,453. July 6 1920. Filed March 30, 1917. Serial No. 158,543.

Power Mine Shovel. Patrick B. Brown, Shenandoah, Pa., 1,345,991. July 6, 1920. Filed June 3, 1918. Serial No. 237,915.

Coal-Oil Generator. Henry Gaston Epps, Waco, Texas, 1,346,370. July 13, 1920. Filed Sept. 9, 1919. Serial No. 322,616.

Coming Meetings

American Mining Congress will hold its annual meeting at Denver, Col., Nov. 15. Secretary, J. F. Callbreath, Munsey Building, Washington, D. C.

New York State Coal Merchants' Association will hold its annual meeting Sept. 9, 10 and 11 at Richfield Springs, N. Y. Treasurer, G. W. F. Woodside, Albany, N. Y.

The Rocky Mountain Coal Mining Institute in conjunction with the Colorado Metal Mining Association, the local chapters of the American Mining Congress and the American Institute of Mining & Metallurgical Engineers, and the International First Aid Meet will hold its annual meeting Sept. 9, 10 and 11 at Denver, Col. Secretary, F. W. Whiteside, Denver, Col.

National Safety Council will hold its 1920 congress on Sept. 27 to Oct. 1, inclusive, at Milwaukee, Wis. General Manager, C. W. Price, Chicago, Ill.

Oklahoma Coal Operators' Association will hold its annual meeting Sept. 14 at McAlester, Okla. Secretary, F. F. La Grave, McAlester, Okla.